



APPENDIX OF SELECTED AIR NAVIGATION SERVICE PROVIDERS

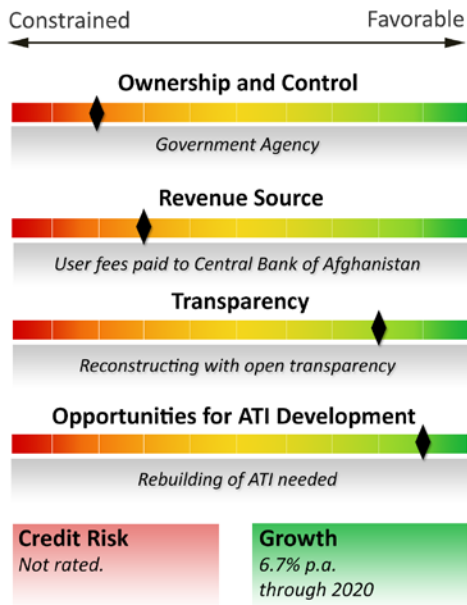
This appendix contains information on the primary air navigation service providers (ANSPs) for the 60 countries selected by **Air Traffic Infrastructure Global Markets 2012**, presenting information tied to improvement, support, operation, and financing of communications, navigation and surveillance (CNS) services, and air traffic management (ATM) capabilities through 2021.

Each ANSP summary identifies the nation (or state, in the parlance of the International Civil Aviation Organization) served by the ANSP, the government agency to which it reports (where appropriate) and the name of the ANSP (preceded in some cases by the name of the agency in which it resides). Each includes a map of the airspace served by the ANSP, along with its neighboring flight information regions, and a chart of air traffic for 2006 and 2011. Since

a focus of this study is the critical role that scheduled airlines will play in the definition, financing, and success of air traffic infrastructure programs, the chart presents scheduled airline origination and destination (O&D) traffic within the ANSP's territory for those years. This (O&D) traffic generally has the greatest interaction with air navigation services and the greatest demand for the infrastructure supporting those services.

NEXA Assessment

Each assessment begins with NEXA's rationale for the ANSP's inclusion in this study; it is paired with a chart depicting six fundamentals underlying that rationale. The six are: ownership and control, the source of revenue, the transparency of its business practices, the current state of its infrastructure, the rating of its (or its "owner's") credit risk, and the projected annual air traffic growth (for the region in which the ANSP operates combined, where available, with forecasts for its host country). Each fundamental is depicted with a color representing whether conditions are a constraint to ATI opportunities (red), are unlikely to foster opportunities (yellow) or are favorable to them (green).



Two of the six fundamentals, credit ratings and forecast growth of air traffic, address discrete conditions. They are shown in separate areas. Each of the other four is shown on a continuum from constrained to favorable.

Credit Risk

For the Credit Risk assessment we draw on Fitch Ratings, Moody's Corporation, and Standard & Poor's. Each stresses that the ratings it assigns are subjective opinions, but they are widely accepted as measures of an entity's ability to service or repay debt: the entity presents a good credit risk (AAA through BBB- for Fitch and S&P, Aaa through Baa3 for Moody's), a speculative one (BB+ through B- and Ba1 through B3, respectively) or a poor risk (CCC+ or Caa1 or lower). For our purposes, those ratings constitute clear distinctions reflected by the appropriate colors.

Growth

For Growth, an annual air traffic increase of four to six percent is the average of the world's commercial air transport industry for the last 30 or so years, a figure agreed to by both Airbus and Boeing. We consider forecast per-annum growth below that range to constrain opportunities for an ANSP, while growth above it should foster investment. NEXA's assessment of growth also considers the level of overflight activity that an ANSP handles and how that may change over the forecast period.

Assessments of the remaining five fundamentals represent the collective opinion of NEXA's team, given the following considerations.

Ownership and Control

This is based on our research of the organizational and legal structure of the ANSP and any organizations, governments or otherwise, that may control or influence its strategic and day-to-day decisions, as well as their past performance. Considerations in this regard include general and

specific political, financial, and market influences on those bodies and the role (or lack thereof) of the ANSP's customers and stakeholders in decision-making, particularly as it relates to selection and financing of air traffic infrastructure and service upgrades. An ANSP that operates according to general business practices and free of political influence is considered most favorable to opportunities; one that operates as a government bureaucracy vulnerable to direct political influence is considered most constrained.

Revenue Sources

We examined whether the ANSP's revenue comes directly from payments by customers for the services provided or from its government's general treasury, whether revenue is dedicated by law or regulation to the sustainment and improvement of air navigation services or is fed into the general treasury for redistribution at the discretion of others outside the ANSP and its stakeholder community. We also reviewed how the ANSP manages its use of revenue. An ANSP with a dedicated source of funding based on its actual costs of providing services and designated for provision and improvement of those services in accordance with general business practices is considered most favorable to future ATI opportunities. One whose revenue is considered a source for expenditures outside the ANSP based on individual or political decisions is considered most constrained.

Transparency

This concerns the ease with which the ANSP's investors and customers can participate in or review its strategic decisions, budget transactions, acquisitions,

and operational performance. Considerations include the findings of the World Economic Forum's annual Global Enabling Trade Report (which discusses obstacles to trade country by country), the Travel and Tourism Competitiveness Report (which reviews factors and policies that affect development of travel and tourism within a country), and reviews by the World Bank, the International Monetary Fund, and other international and regional bodies. An ANSP that regularly issues financial and performance reports and undergoes public reviews (including comments from customers and stakeholders by an independent oversight body or legislature) is considered as favorable to opportunity. One that does not issue such reports, publicly discuss plans for charge increases and strategic actions, or subject itself to review beyond a closed group of select officials is considered most constrained.

In addition to this assessment, the summary includes basic information on the operation, staffing, activities, and equipment of the ANSP, identifies the top five airlines that serve its territory and provides contact information for key ANSP personnel and the embassies of the home country and the US.

Opportunities for ATI Development

This is based on NEXA's assessment of the ANSP's CNS/ATM infrastructure, including the number, age, coverage, performance, and maintenance requirements of equipment like radar, navigation aids and increasingly, advanced avionics of the fleets within the direct authority of the ANSP. An ANSP with little or no surveillance or navaid infrastructure or obsolescent systems is considered most favorable for opportunities; one that has recently upgraded its CNS/ATM capabilities is considered most constrained for the earlier portion of our forecast period. (A recent upgrade may present opportunities later in the forecast period depending on the procurement cycle of the ANSP involved and the service life of equipment and systems upgraded.)

Islamic Republic of Afghanistan

Ministry of Transport and Civil Aviation Authority

■ NEXA ASSESSMENT

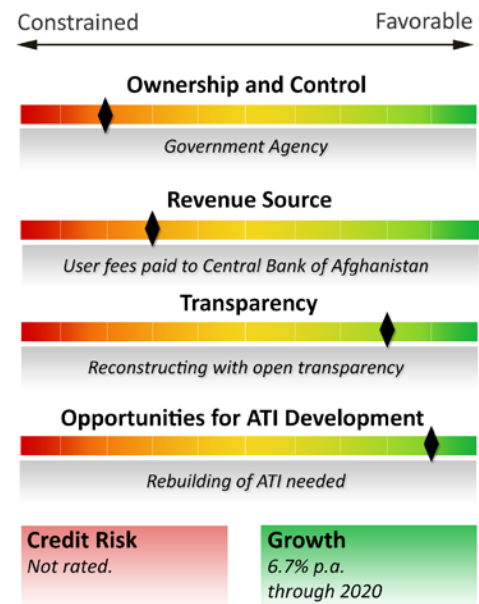
Civil aviation is a key component of the overall efforts for reconstruction and rehabilitation of Afghanistan. Decades of war have significantly impacted the state of ATI in the country. Critical infrastructure was neglected, destroyed, forfeited or seized, leaving little foundation to support civil air transportation. The Afghan Ministry of Civil Aviation and Transport, MoCAT, along with international assistance from a consortium of organizations, is working to reestablish Afghan control of civil aviation functions and facilitate reconstruction efforts. This Civil Aviation Working Group, CAWG, will serve as the sole, top-level coordinating body to strategically guide reconstruction efforts using a collaborative framework, ensuring representation of all stakeholders, to allow independent and simultaneous contribution to reconstruction projects.

Opportunities in Afghanistan’s ATI market are pervasive. A key axiom of Afghanistan’s civil aviation future is the gradual transfer of operational control and regulation from coalition forces, creating a plethora of opportunities. The Civil Aviation Master Plan outlines principles that are essential to reconstructing Afghanistan’s civil aviation system. Each of these principle categories – institution building, technical training, civil aviation operations, and infrastructure – all in beginning stages, will require outside suppliers and expertise for building internationally compliant and regulated civil airspace with operationally scalable capacity for handling long-term growth.

Kabul International Airport is a focal point of rehabilitation efforts, with multiple projects planned or underway to aid in building airport capacity and the requisite skills of Afghan employees through transfer of knowledge from organizations currently operating the ATC systems.

Rebuilding Afghanistan’s ATI will require long-term commitments from outside organizations with the necessary capital to build infrastructure and the technical knowledge to handle operations. With the transitional phase still in the early stages, long-term commitments are subject to additional risk, especially in

a region with ongoing military activity and highly volatile international relations. The Afghan government agreed to accept full responsibility for the security of the country by the end of 2014, a major transition with implications affecting civil aviation. Annual external civilian aid, estimated at roughly the equivalent of Afghanistan’s GDP, will not be sustained as international attention shifts elsewhere, raising possibilities of political and economic ramifications beyond the near future.



BACKGROUND

- Ahmad Shah Durrani unified the Pashtun tribes and founded Afghanistan in 1747. The country served as a buffer between the British and Russian Empires until it won independence from notional British control in 1919.
- The Afghan government is an Islamic Republic which consists of three branches: Executive – president (chief of state). Legislative – bicameral National Assembly; Wolesi Jirga (lower house) 249 seats, Meshrano Jirga (upper house) 102 seats. Judicial – Supreme Court, High Courts, and Appeals Courts.
- The 1979 Soviet invasion and ensuing civil war destroyed much of the country’s limited infrastructure and disrupted normal patterns of economic activity. Gross domestic product fell substantially because of loss of labor and capital and disruption of trade and transport. Continuing internal strife hampered both domestic efforts at reconstruction as well as international aid efforts.



- However, Afghanistan's economy has grown at a fast pace since the 2001 fall of the Taliban, albeit from a low base. GDP growth exceeded 12 percent in 2007 and 3.4 percent in 2008; growth for 2009-2010 was 22.5 percent and was approximately 8.2 percent in 2010.

BRIEF HISTORY

- The civil aviation sector has been central to Afghanistan's reconstruction efforts since the fall of the Taliban government in 2001. The Afghan Ministry of Transport and Civil Aviation is working with international partners and donors for the rehabilitation, organization and management of Afghan airspace. Responsibility for its airspace will pass from the US-led International Security Assistance Force to the Afghan government at the end of the country's stabilization process. The main hub is Kabul International Airport in the capital. Ariana Afghan Airlines, the government-owned-and-operated carrier, has historically had autonomy in the aviation market. The airline was completely grounded in November 2001 during the overthrow of the Taliban government by US allies in Operation Enduring Freedom. It commenced rebuilding operations soon after and flies to a number of international destinations – including Middle East and Central Asian countries, China, India and Germany – although it remains on the list of carriers banned in the European Union (as at July 2010). The government has since opened up the market with Kam Air – founded in August 2003 – becoming the first commercial airline. Safi Airways, with five aircraft and a network including Frankfurt, the Gulf States and India, is the second-largest carrier after Ariana.

PERFORMANCE

Employees 2,156

AIRPORTS

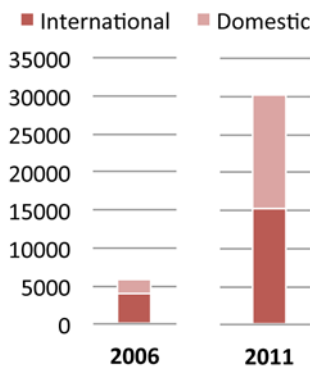
Total	53
Paved Runways > 10,000ft	19
8,000ft – 10,000ft	4
5,000ft to 7,999ft	3
< 4,999ft	8
Heliports	4
	11

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Afghan Airlines by 2011 Scheduled Seats

Pamair Airways	1,136,880
Kam Air	552,794
Ariana Afghan Airlines	388,644
Safi Airways	140,371
East Horizon Airlines	116,480

Afghanistan Scheduled Airline O&D Movements



Source: OAG Schedules Database

Top Five Foreign Airlines by 2011 Scheduled Seats

Eastern Skyjets	110,888
Flydubai	110,754
Air Arabia	41,472
Air India	37,990
Iran Asseman Airlines	32,609

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Argentina

Administration Nacional de Aviacion Civil Argentina (ANAC)

■ NEXA ASSESSMENT

Argentina serves as a key transit and entry/exit terminal in South America. Even though Buenos Aires is the most important flight hub for both economic and geographic reasons, there are flights between important cities, such as Córdoba, Rosario and Mendoza. The national airline is Aerolíneas Argentinas. Air transport also facilitates and supports the significant tourism industry. The industry suffered significantly in 2008-2009 as the global economic crisis hit domestic and international passenger revenues, while the spike in oil prices in the early part of that period raised fuel costs. Aerolineas was nationalized in late 2008 following financial difficulties.

Responsibility for air traffic services in Argentina remains in flux. The CRA was created in 1968 to take care of both civil and military aviation services. In 2009, the CRA was dissolved and its ATC functions were taken over by a new civil organization, the Administración Nacional de Aviación Civil (ANAC). Following disputes and cancellations in 2011, the government announced plans to transfer control of air traffic control services from the ANAC to the Argentine Air Force. Nonetheless, Argentina's civil aviation-related woes continue unabated: slowdowns, strikes, stolen luggage, overbooking, and poor service are routine features of flying in the country. In 2010, ANAC established a five-year development plan to address ATC planning and operational needs, including secondary Radar installation, ADS-C implementation, GNSS integration, and flow management. In cooperation with the Argentinean Air Force and ICAO, ANAC will modernize the air traffic tower in San Fernando with a new voice communication system (VCS) from Frequentis.



Despite ATC obstacles, the scale of the recent economic downturn has been much less severe than in other countries, supported by a positive trade balance. The acceleration in Chinese growth is likely to persist, benefitting Argentina via increased demand for grain and other commodities. Second, a strong performance in Brazil should boost the Argentine manufacturing sector. Argentina has been successful in promoting foreign investments in other infrastructure sectors, such as energy, and could expand its air sector potential with by settling its air traffic management policies.

BACKGROUND

- In 1816, the United Provinces of the Rio Plata declared their independence from Spain. After Bolivia, Paraguay, and Uruguay went their separate ways, the area that remained became Argentina, with a population of 41.77 million (2010).
- Its government is a republic consisting of three branches: Executive— president, vice president, cabinet. Legislative— bicameral Congress (72-member Senate, 257-member Chamber of Deputies). Judicial— Supreme Court, federal and provincial trial courts.
- With an annual growth rate of 9.2 percent(2010). Argentina benefits from rich natural resources, a highly educated population, a globally competitive agricultural sector, and a diversified industrial base. The move after the 2001-2002 crisis to a more flexible exchange rate regime, along with sustained global and regional growth, a boost in domestic aggregate demand via monetary, fiscal, and income distribution policies, and favorable international commodity prices and interest rate trends were catalytic factors in supporting five consecutive years of greater than 8 percent annual GDP growth between 2003 and 2007. That economic

recovery enabled the government to accumulate substantial official reserves (over US\$52 billion as of late 2010). The reserves, combined with the absence of fresh borrowing from the international capital markets, helped insulate the economy from external shocks.

- While the economic downturn was less severe in Argentina than elsewhere, the deterioration of both domestic and international demand complicated the fiscal situations of both the federal government and the provinces. The global economy's current recovery is helping to ameliorate some of those pressures. Continued expansive fiscal and monetary policies in 2011 and 2012 helped fuel strong growth. The recovery was also reflected in an increase in both imports and exports, up 31 percent and 23percent, respectively, in 2011.

BRIEF HISTORY

- The ANAC manages air navigation services, optimizing safety levels in the airspace, airports and airfields around the country, regulating, controlling, monitoring and managing the civil aeronautical activity.
- The missions and functions performed by the Air



Regions Command (ARC) of the Argentine Air Force under the Ministry of Defence will be carried out by the ANAC under the Ministry of Transport of Federal Planning, Public Investment and Services.

- Article 2 - The Civil Aviation Administration National created by Decree No. 239 dated March 2007, shall have the following functions and powers:
 - ◊ Take the necessary actions relevant to the FAA under the Code Aeronautical, Aviation Regulations, International Agreements, Rules of the Air and other rules and regulations, both national and international.
 - ◊ Supervise and control public and private airfields nationwide, air navigation services, ratings and licenses granted, airworthiness, operation of aircraft, work and air transport, the operation of aeronautical services, air traffic and communications, training, staff development and training of aeronautical services, flying clubs. The ANAC insures that civil aviation is in compliance with both current legislation and national and international agreements.
 - ◊ Participate in the development of regulatory

projects related to matters within its competence, promoting its periodic review and updating of regulations and procedures.

AIRPORTS

Total	1,141
Paved Runways	156
> 10,000ft	4
8,000ft – 10,000ft	27
5,000ft to 7,999ft	65
< 4,999ft	60
Heliports	2

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Argentinean Airlines by 2011

Scheduled Seats

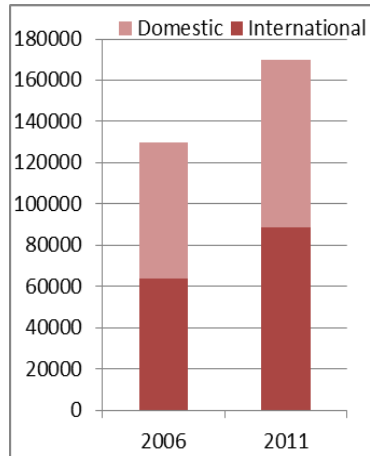
Aerolineas Argentinas	7,588,081
Andes Lineas Aereas	137,739
Lineas Aereas Del Estado	119,392
Sol Lineas Aereas	97,036
LAN Argentina	95,816

Top Five Foreign Airlines by 2011

Scheduled Seats

Lan Airlines	4,121,496
VARIG-GOL Airlines	867,594
TAM Linhas Aereas	574,530
American Airlines	372,393
Iberia	276,462

Argentina Scheduled Airline O&D Movements



Source: OAG Schedules Database

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Australia

Airservices Australia

■ NEXA ASSESSMENT

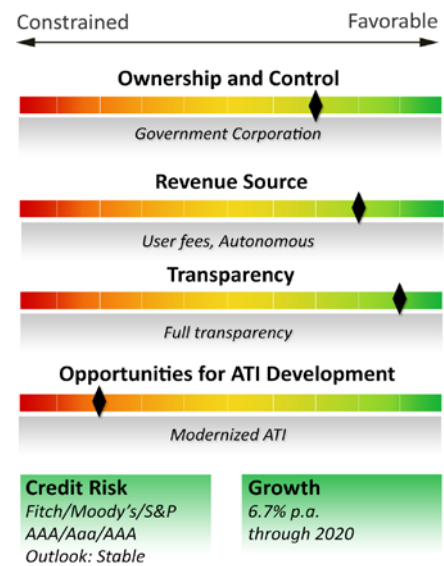
Australia, roughly the size of the 48 contiguous United States, has a developed ATI market supporting a voluminous air transport industry. As an island continent, Australia’s economic health is directly dependent on air transportation. The Australian ANSP, Airservices Australia, has steadfastly upgraded infrastructure to remove any air transportation constraints capable of negatively impacting the island’s economy. Australia is the first developed ATI market to implement mandated use of ADS-B for aircraft operations, starting December 12th, 2013.

Airservices Australia was formed in 1995, when the Civil Aviation Authority split into two bodies, the other being the Civil Aviation Safety Authority, responsible for aviation safety regulations, licensing, and aircraft certification. Airservices is not prescribed as a Government Business Enterprise, a wholly government-owned unlisted public company, but is treated as such. Starting in the early 1990s, Australia’s economic policies shifted towards privatization of or private participation in GBEs, ultimately aimed at reducing government’s net debt. As a result of privatization efforts, traditional public sector services, including air transport, have transitioned to private sector involvement, with fully transparent budgeting under GBE regulations and reporting standards.

Airservices Australia, which handles more than 1.5 million domestic and international flights a year, is responsible for 11 percent of the world’s airspace, also covering international airspace over the Pacific and Indian Oceans. Aircraft movements are expected to triple in the Asia-Pacific region by 2030, increasing the importance of leading edge ATI and regulatory policies to facilitate the flow of goods and services to and from the region. The integration of civil and military ATM, supporting flexible use of military airspace with civil aviation, as well as joint ventures such as ASPIRE, aimed at increasing the operational efficiency of airspace, will improve the future of air transport for the region by exploring new policies and procedures in all aspects of flight.

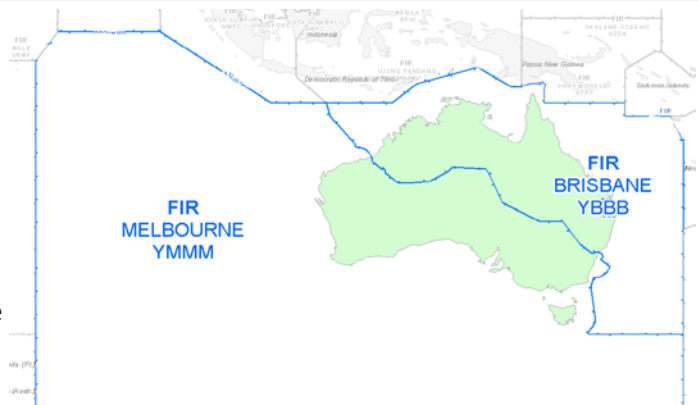
Heterogeneous technologies and capabilities of regional ANSPs provide opportunities and challenges for Airservices Australia. Bordering airspaces, controlled by ANSPs with outdated technologies, impose inefficiencies in international traffic flows. Consolidation of airspace responsibilities for overflight traffic through neighboring airspace, under the responsibility of ANSPs lacking modernized technology capable of higher efficiency routing and performance navigation procedures, provides regional opportunities to accelerate benefits from modernization.

The Qantas group, offering legacy, low-cost and freight services, is increasing global presence focusing on safety, leading edge technologies and market adaptation. Asia-Pacific passengers are rapidly increasing demand for low-cost carrier alternatives, increasing regional opportunities along multiple supply chains. Jetstar Japan, a low-cost carrier agreement formed by Qantas, Japan Airlines, Century Tokyo Leasing Corporation, and Mitsubishi, is slated to begin operations in 2012, capturing a share of the evolving low-cost market in Asia-Pacific.



BACKGROUND

- A continent and an island with a population of 21.7 million.
- Federal parliamentary democracy and a Commonwealth realm.
- Common law system based on the English model.
- Bicameral legislative branch consisting of the House of Representatives and the Senate.
- Monarchy is hereditary; governor general appointed by the monarch on the recommendation of the prime minister; following legislative elections, the leader of the majority party or leader of a majority coalition is sworn in as new prime minister by the governor



general.

BRIEF HISTORY

- Initially, Civil Aviation Authority of Australia served as the ANSP for Australia and was incorporated in 1988.
- Air Services Act of 1995 established the development of Airservices Australia as a Government Based Enterprise.
- Governed by a board of directors appointed by the Minister for Transport and Regional Services.
- The Governor General of Australia is charged with the regulatory powers of section 77 of the Airservices Australia Act to specifying the functions and exercisable powers.
- Airservices is accountable to the Australian Parliament through the Minister for Infrastructure, Transport, Regional Development and Local Government, and its operations are regulated by the Civil Aviation Safety Authority (CASA).

COUNTRIES/REGIONS SERVED

Airservices Australia serves two Flight Information Regions: FIR Brisbane and FIR Melbourne, Nauru & Solomon's Island, and the Indian & Pacific Oceans (sq nm), providing terminal, en route and oceanic IFR/VFR air traffic control, meteorological and aeronautical information and publications services for commercial, general aviation, and military customers.

PERFORMANCE

Employees: 3,800
ATCOs: 950
Aircraft Handled: 3,158

FACILITIES

Towers 28
ACC 2
Aviation Fire Control Centers 21

AIRPORTS

Total 465
Paved Runways 326
> 10,000ft 11
8,000ft – 10,000ft 13
5,000ft to 7,999ft 148
< 4,999ft 154
Heliports 1

EQUIPMENT – ATM

- Trial for Remote Tower Technology

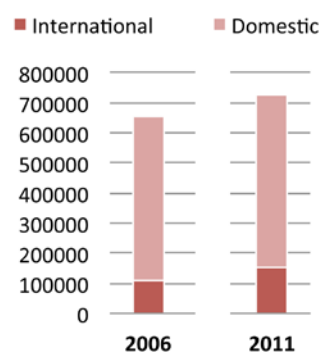
EQUIPMENT – NAVIGATION

- 500 nav aids to include VORs, DMEs, NDBs, ILS, approach lighting, & GBAS

EQUIPMENT – SURVEILLANCE

- Radar (SSR)
- 29 duplicated ADS-B ground stations
- 14 ADS-B capable multilateration sites in Tasmania and 16 sites in the Sydney basin
- 1 Precision Runway Monitor

Australia Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Australian Airlines by 2011

Scheduled Seats

Qantas Airways	34,057,261
Virgin Australia	20,266,434
Jetstar Airways	15,079,608
Tiger Airways Australia	3,336,480
Regional Express	2,125,510

Top Five Foreign Airlines by 2011

Scheduled Seats

Emirates Airlines	1,759,710
Singapore Airlines	1,617,996
Cathay Pacific Airways	1,547,355
Air New Zealand	1,453,670
Malaysia Airlines	780,095

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Bahrain

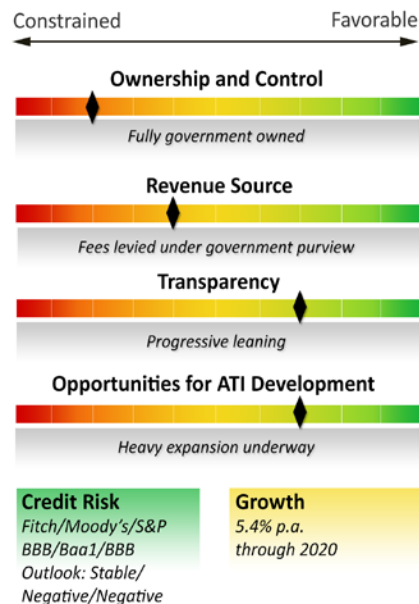
Civil Aviation Affairs (CAA)

■ NEXA ASSESSMENT

Air travel in Bahrain has followed the upward trajectory of many of its regional counterparts, and the Kingdom remains proud of its heritage as a historical transport and trading link of the Middle East. Bahrain’s regulatory body, Civil Aviation Affairs (CAA), has full oversight of all aspects of Bahrain’s air transport sector, with responsibilities for all regulatory matters concerning air transport activities (covering operating permits, permissions for overflight and landing, schedule clearance, carriage of dangerous goods, airworthiness, and flight operations) as well as ensuring compliance with international air safety and security standards. Gulf Air and Bahrain Air serve as the country’s two flag carriers and are well supported by the government.

Located in the northern Gulf, Bahrain International Airport is one of the Middle East’s key hub airports. It serves as the centerpiece of the Bahrain system and is slated for considerable expansion and upgrades over the next decade. The three-phase expansion will enable the airport to handle 45 million passengers a year. Further, Thales recently delivered automation systems located at the BCAA control center to support a modernized ATM system, including two control towers on the Bahrain International Airport.

Over the past years, the government has been the engine driving the economy, using oil revenues to provide a modern physical and legal infrastructure without having to resort to traditional forms of taxation. The result is a vibrant economy (perhaps the most free in the Middle East), an educated population, and active private markets. The government is progressively moving away from its direct involvement and encouraging private sector initiatives.



BACKGROUND

- Bahrain, a group of 33 islands, with an area of 770 sq kilometres, is situated in the Arabian Gulf, off the east coast of Saudi Arabia.
- The kingdom takes its name from the largest island, Bahrain, which is 586.5 sq kilometres.
- Bahrain obtained its independence from the UK in August 1971.
- Its government consists of a constitutional hereditary monarchy.
- Arabic is the official language, although English is widely understood and is used by most businesses.
- Islam is the religion of Bahrain and is practiced by a large majority. Places of worship of other faiths exist in the country.

- In 1954 Bahrain’s position as the major airport in the region was further enhanced with the establishment of a new flight information region to cover the navigation of aircraft in transit through Gulf airspace. This saw the installation of modern navigational and communications equipment.

AIRPORTS

Total	4
Paved Runways	4
> 10,000ft	3
8,000ft – 10,000ft	1
5,000ft to 7,999ft	0
< 4,999ft	0
Heliports	1

BRIEF HISTORY

- The first scheduled commercial flight arrived in Bahrain in October 1932 en-route from London to Delhi and was operated by a Handley Page HP-42 aircraft named “Hannibal.”
- In 1937 the limelight in commercial aviation was stolen by the flying boats, and Bahrain saw the start of regular service by the famous Short’s Empire seaplanes. Flying-boat services to Bahrain continued into the early 1950s. At their height, what by then had become BOAC was operating several services a week through Bahrain.

TOP 5 AIRLINES BY SEATS/MOVEMENTS

Top Five Bahraini Airlines by 2011 Scheduled Seats

Gulf Air	3,568,208
BAHRAIN AIR	706,313

Top Five Foreign Airlines by 2011 Scheduled Seats

Qatar Airways	414,684
Emirates Airlines	254,929
Etihad Airways	243,309
British Airways	164,051



flydubai

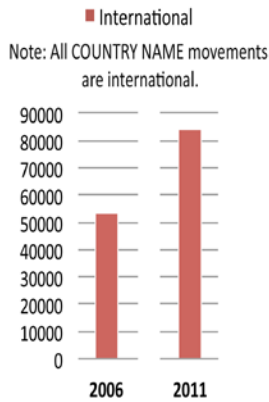
159,516

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Bahrain Scheduled Airline O&D Movements



Source: OAG Schedules Database

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Bangladesh

Civil Aviation Authority of Bangladesh (CAAB)

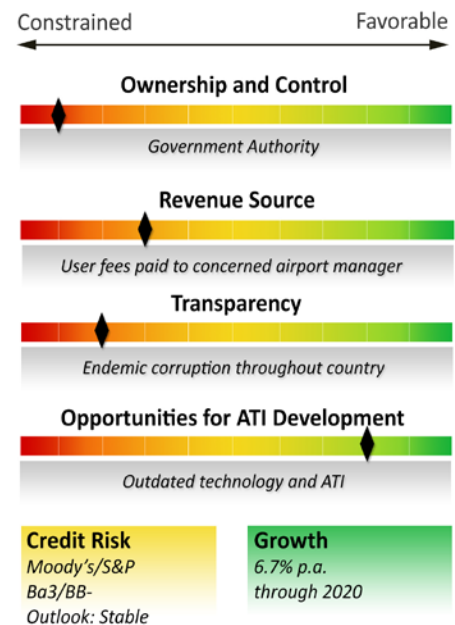
■ NEXA ASSESSMENT

Bangladesh, considered a Least Developed Country by the United Nations, is severely debilitated by poor transportation and communication infrastructure. Located between two economic powerhouses, China and India, Bangladesh is well suited as a transit country, providing a significant upside to ATI modernization efforts. Bangladesh has a wealth of resources, including both labor and natural, that create significant economic potential capable of driving its status from Least Developed Country to being the next emerging market in South Asia. Significant barriers must be overcome if ATI investments are to keep pace with an economy growing at over six percent per annum.

Inefficiency in the public sector, resistance to developing the country's rich natural resources, and limited capital are restricting economic growth. The government of Bangladesh is trying to encourage foreign direct investment and privatization, but the process of economic liberalization has been slow, mostly due to worker unrest in affected industries. In order to compete in a global economy, Bangladesh must privatize state-owned enterprises, deregulate and promote foreign investment in high potential industries, and move towards removing corruption and strengthening the rule of law.

Commercial aviation, with service from 17 airlines, currently operates out of three international and seven domestic airports. The principal airport, located in the capital city of Dhaka, currently accounts for over 90 percent of the aeronautical functions of the Civil Aviation Authority Bangladesh and almost 100 percent of international passenger traffic. The CAAB, established in 1985, is a single organization responsible for all aviation-related activities in Bangladesh. Aggregation of all aviation activities, especially operations and safety regulations, is a potential hindrance to ATI development in the country. A larger air transport industry, capable of meeting future demand in Asia-Pacific, cannot be adequately financed and operated under a single authority.

Bangladesh, ranked 62nd in the world overall in 2010 for both passenger-kilometers and tonne-kilometers performed, is rapidly expanding service to high-growth niche markets in the UAE and Malaysia. The Dhaka FIR, with ATC operations under the responsibility of CAAB, lies in a strategic corridor between additional high-growth intra and interregional market pairs. Additional freedoms of the sky as well as modernized ATI, beyond the 43 current bilateral agreements and outdated radars, will be necessary to capture future benefits of Bangladesh's geographically strategic location between large and growing economies.



BACKGROUND

- Europeans began to set up trading posts in the area of Bangladesh in the 16th century; eventually the British came to dominate the region and it became part of British India. In 1947, West Pakistan and East Bengal (both primarily Muslim) separated from India (largely Hindu) and jointly became the new country of Pakistan. East Bengal became East Pakistan in 1955, but the awkward arrangement of a two-part country with its territorial units separated by 1,600 kilometers left the Bengalis marginalized and dissatisfied. East Pakistan seceded from its union with West Pakistan in 1971 and was renamed Bangladesh.
- About a third of this extremely poor country floods annually during the monsoon season, hampering economic development.
- Although one of the world's poorest and most densely populated countries, Bangladesh has made major strides to meet the food needs of its increasing



population, through increased domestic production

augmented by imports.

- Bangladesh has a population of about 156 million (July 2009, CIA est.). Its government is a parliamentary democracy which consists of three branches: Executive – president (chief of state), prime minister (head of government), cabinet. Legislative – unicameral Parliament (345 members). And a Judicial – civil court system based on British model.

BRIEF HISTORY

- Civil Aviation Authority, Bangladesh (CAAB) functions as the regulatory body for all aviation related activities. It is also the aeronautical service provider and is responsible for safe, expeditious and efficient flow of air traffic within the Flight Information Region (FIR) bounded by the international geographic boundary of Bangladesh. This organization is the custodian of all airfields and allied facilities including air navigation facilities.
- Aviation activities in independent Bangladesh started in the last week of December 1971. Over the years, infrastructure and facilities were developed. At present, aviation activities are being carried out from three international and seven domestic airports; about 17 airlines are now operating in and out of the country; about 43 States signed bilateral agreements with Bangladesh.
- In 1972, the Civil Aviation Division was created and brought under the Ministry of Shipping, Inland Water Transport and Civil Aviation. However, an independent Ministry of Civil Aviation and Tourism was created in August 1975. This again became a division under the Ministry of Communication in January 1976. A separate Ministry of Civil Aviation and Tourism was created in December 1977. In March 1982 the ministry was abolished and the Civil Aviation and tourism division became a new Division under the Ministry of Defence. In 1986, the Ministry of Civil Aviation and Tourism was re-established as a ministry and has

been continuing as such since then.

AIRPORTS

Total	17
Paved Runways:	15
> 10,000ft	2
8,000ft – 10,000ft	2
5,000ft to 7,999ft	6
< 4,999ft	5
Heliports	11

EQUIPMENT – COMMUNICATION

- AFTN

EQUIPMENT – NAVIGATION

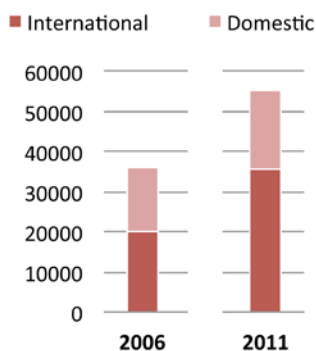
- NDB
- DVOR-DME
- ILS
- TWR-VOR-NDB

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Bangladeshi Airlines by 2011 Scheduled Seats

Biman Bangladesh	1,626,163
GMG Airlines	642,449
United Airways Bangladesh	332,767
REGENT AIRWAYS	316,950

Bangladesh Scheduled Airline O&D Movements



Source: OAG Schedules Database

Top Five Foreign Airlines by 2011 Scheduled Seats

Emirates Airlines	289,602
Qatar Airways	166,952
Saudi Arabian Airlines	147,630
Jet Airways India Ltd	146,666
Air Arabia	129,924

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 Name: Md. Ataul Islam
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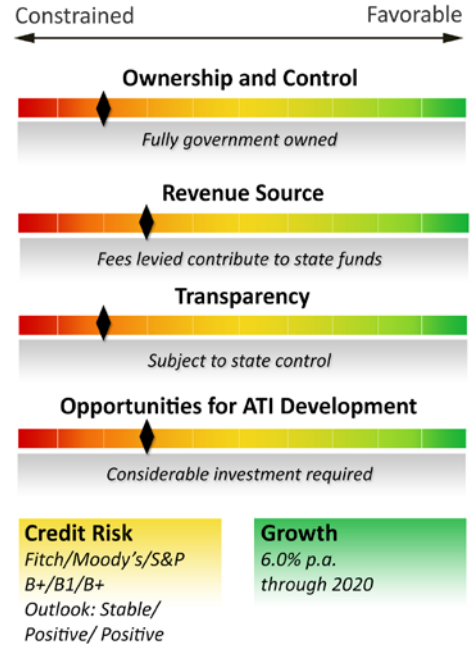
Bolivia

Administration of Airports and Auxiliary Services of Air Navigation (AASANA)

■ NEXA ASSESSMENT

Bolivia is one of the poorest and least developed countries in Latin America and relatively isolated from major global markets in North America, Europe, and Asia due to its geographical location. Bolivia is landlocked, while its capital, La Paz, is situated at high altitude with road and rail links that can be subject to closure. As such, air transport is vital for domestic and international connections for many businesses and individuals. The hub of air traffic is El Alto airport near La Paz, the world’s highest commercial airport; the other international airport is at Santa Cruz.

The Bolivian government continues to use the state to exert greater control of the economy and is renegotiating the terms of investment in order to capture a greater portion of the revenue for social programs. In just three years, Bolivia’s state airline, Boliviana de Aviacion, has pushed aside private carriers, bucking an international trend toward privatization while becoming the leader in domestic flights for a poor Andean country where flying remains a luxury. BoA now controls about half of Bolivia’s domestic air travel market, successfully filling the gap left by the 2007 failure of Lloyd Aereo Boliviano, a former state-run company that went bankrupt after failed attempts to privatize it. Bolivia’s principal privately-owned airline, AeroSur, was down to a single domestic route and hoping for an infusion of capital to stave off bankruptcy. International trade with Bolivia is complicated by high tariffs, complex regulations, and corruption. With a continued march toward state control of the economy and a poor record of facilitating business transactions, it is difficult to project growth in Bolivia’s air transport sector or economy at large.



BACKGROUND

- Democratic civilian rule was established in Bolivia in 1982.
- Bolivia has been plagued by problems including poverty, social unrest, and illegal drug production and trafficking.
- Bolivia is a landlocked country bordering Chile, Argentina, Brazil, Peru and Paraguay with a population of 10.1 million.
- It is defined in its constitution as a social unitarian state with the capital located in La Paz.
- The legal system is a civil law system with influences from Roman, Spanish, Canon, French, and indigenous law.
- The chief of state and head of government is Juan Evo Morales, serving since 2006.
- Between 2003 and 2005, Bolivia was characterized by political instability, racial tensions, and violent protests.
- Bolivia recorded the highest growth rate in South America during 2009.

BRIEF HISTORY

- The Administration of Airports and Auxiliary Services was created in October of 1968 and given charge of Bolivia’s airports and air traffic control.
- The General Directorate of Civil Aviation works under the Ministry of Public Works and Services and is a self-governing body in charge of the security and technical regulations of civil aviation.
- The Superintendency of Transportation regulates and



sets air navigation service charges.

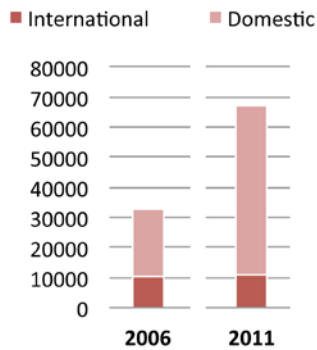
COUNTRIES/REGIONS SERVED

La Paz

AIRPORTS

Total	881
Paved Runways	16
> 10,000ft	3
8,000ft – 10,000ft	4
5,000ft to 7,999ft	4
< 4,999ft	5

Bolivia Scheduled Airline O&D Movements



Source: OAG Schedules Database

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TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Bolivian Airlines by 2011 Scheduled Seats

Aerosur	1,339,867
BoA-Boliviana de Aviacion	925,940
Amazonas	416,784
Aerocon	318,869

Top Five Foreign Airlines by 2011 Scheduled Seats

Lan Airlines	110,960
American Airlines	78,396
Taca Intl Airlines	76,344
Transport Aereos Mercosur	50,400
VARIG-GOL Airlines	47,840

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Name: Dr. Juan Urrutia Plaza
Title: Director de Transporte Aéreo
Name: Cap. Julio Fortún Landívar
Title: Director de Navegación Aérea
Name: Sr. Julio Andrade Requena
Title: Director Juridico
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Brazil

Department of Airspace Control (DECEA)

■ NEXA ASSESSMENT

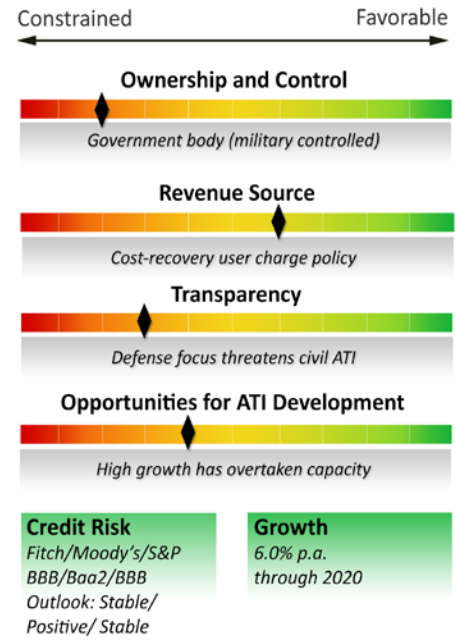
Brazil is among the fastest growing aviation markets in the world. Low-cost carriers have fueled growth, as they open up new opportunities to the masses by allowing passengers to buy tickets on credit and pay in installments. Unfortunately, residents and tourists have had to deal with numerous flight delays and postponements.

The Department of Airspace Control (DECEA) is responsible for the management of all activities related to the safety and efficiency of Brazilian airspace. In most countries, the civil aviation regulatory body is under either the Ministry of Transportation or the Ministry of Industry/Development. This is not the case in Brazil, where the DECEA is under the Ministry of Defense and responsible for air defense, search and rescue operations, and air force communications. The dual role of the agency is the subject of scrutiny by many critics who doubt the ability of a defense priority in handling civil air traffic control matters.

The country's airports have not been able to handle the increased passenger traffic brought about by economic progress. According to IATA, at least 13 out of 20 domestic terminals are beyond capacity and Sao Paulo, the country's largest passenger hub, is already under strain. Runways and radar equipment have not been properly maintained because of budget cuts, and training air traffic controllers and the installation of safety systems have not been prioritized. Some believe Brazil's state-run Infraero, which runs the country's 67 largest airports and handles 97 percent of its air traffic, creates political obstacles and consistently underinvests in its assets. According to McKinsey and Company, Brazil needs to invest nearly US\$5 billion in its 20 largest airports by 2014, and solving the additional bottlenecks will require investments on the order of US\$10 – US\$15 billion over the next 20 years. Other ATC infrastructure, such as radar, is difficult to maintain due to location and lack of funding. By some estimates, 20 percent of Brazil's radar coverage area is unreliable.

In 2011, the EU and Brazil signed a comprehensive agreement to liberalize air transport service between the two regions. In addition, the FAA has joined with Brazil to launch an aviation partnership. The aviation partnership is a unique public-private partnership that will support bilateral cooperation in areas such as airport expansion, airspace management, safety and security.

As a result of rapidly increasing air traffic because of Brazil's growing economy and the upcoming World Cup and Olympic Games, Brazil is facing an urgent need to increase its investments in aviation infrastructure in order to accommodate the expected growth. Global companies are eager to connect to the export opportunities created by these investments.



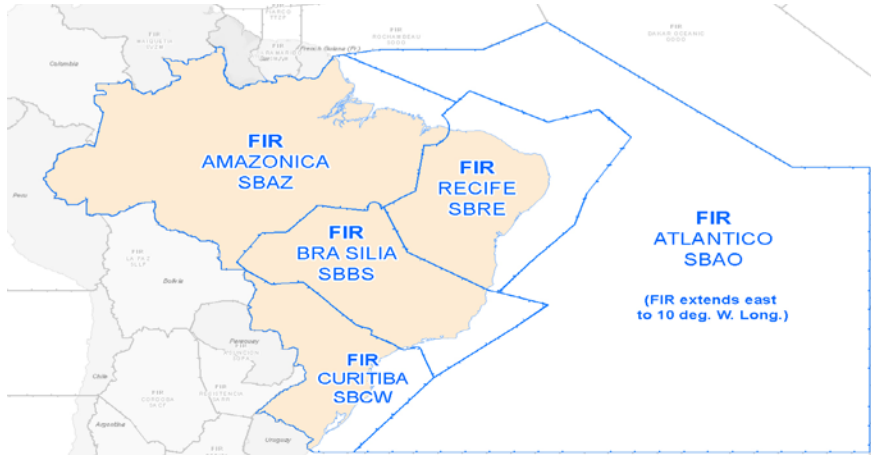
BACKGROUND

- Over the past few years, Brazil has moved from a country with great promise 'sometime in the future' to being seen as one of the hottest investment opportunities in the world. A more stable political system and currency, coupled with vast mineral wealth, make Brazil a 'must' for all companies with truly global ambitions.
- With a population of 194 million, Brazil represents the fifth largest market opportunity in the world — after China, India, Indonesia, and the USA. It is also the fifth largest country in the world by geographic size. An IMF (International Monetary Fund) report indicates that Brazil leads all other South American countries in terms of infrastructure and technological development. Combine these facts with the stabilizing economic and political landscape — (the twin nightmares of corruption and hyper-inflation ravaged the country for decades) — and it is easy to see why Brazil attracts a higher percentage of total global foreign direct investment year after year.

- The government is a federal republic with executive, legislative and judicial branches.

BRIEF HISTORY

- The Department of Airspace Control (DECEA) is a governmental organization, subordinate to the Brazilian Air Force, that brings together human resources, equipment, systems, and infrastructure responsible for air traffic control and airspace defense. The organization is in charge of about two million sq kilometres of airspace.
- DECEA provides services such as aeronautical information systems, air traffic management, aeronautical telecommunications, aeronautical cartography, aeronautical meteorology, flight inspection, and search and rescue.
- DECEA has an integrated civilian and military purpose. Accordingly, its mission is to manage and control air traffic as well as to guarantee the defense of Brazilian airspace. Therefore, this integration has been conceived to support military and civil operations, resulting in a significant economy of means and resources. The same



communications, navigation and surveillance means are applied to provide air traffic control services and air defense, enabling the country to save resources and to serve both Air Force operational requirements – complying with the rules set by the Brazilian Airspace Defence Command – and the duties to ICAO, satisfying all the annexes referring to air traffic.

will develop a roadmap for PBN (Performance-based Navigation) implementation. GE will work with ANAC, the Brazilian regulator, and DECEA, the Brazilian air navigation service provider, to support GOL toward obtaining Operations Specification to fly RNP AR in Brazil. Upon approval, GOL will be the first Brazilian airline to gain such RNP AR operational approval in a Boeing 737.

COUNTRIES/REGIONS SERVED

Brazil

PERFORMANCE

Employees 12,120
ATCOs 3,446

FACILITIES

Towers 58
ACC 5

AIRPORTS

Total 4,072
Paved Runways 726
> 10,000ft 7
8,000ft – 10,000ft 28
5,000ft to 7,999ft 176
< 4,999ft 515
Heliports 13

EQUIPMENT – COMMUNICATION

- 90 Aeronautical Telecommunications Stations

EQUIPMENT – NAVIGATION

- GOL Transportes Aereos has selected GE Aviation’s PBN Services to assist them in obtaining regulatory authorization to fly Required Navigation Performance (RNP) flight procedures in Brazil. GE will perform a customized assessment of the airline’s readiness to adopt RNP, examining GOL’s current equipment and operations. Based on the assessment, GE

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

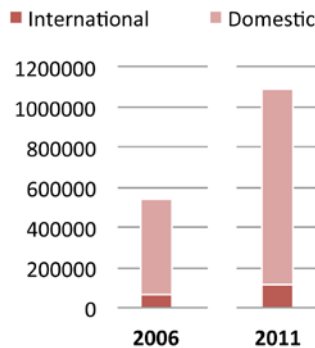
Top Five Brazilian Airlines by 2011 Scheduled Seats

TAM Linhas Aereas	53,919,439
VARIG-GOL Airlines	51,747,484
Azul Airlines	10,115,212
TRIP Linhas Aereas	7,731,087
Webjet	7,497,788

Top Five Foreign Airlines by 2011 Scheduled Seats

Phoenix Aviation	1,571,770
TAP Air Portugal	924,564
American Airlines	828,784

Brazil Scheduled Airline O&D Movements



Source: OAG Schedules Database

Lan Airlines 619,614
Aerolineas Argentinas 527,934

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Bulgaria

Bulgarian Air Traffic Services Authority (BULATSA)

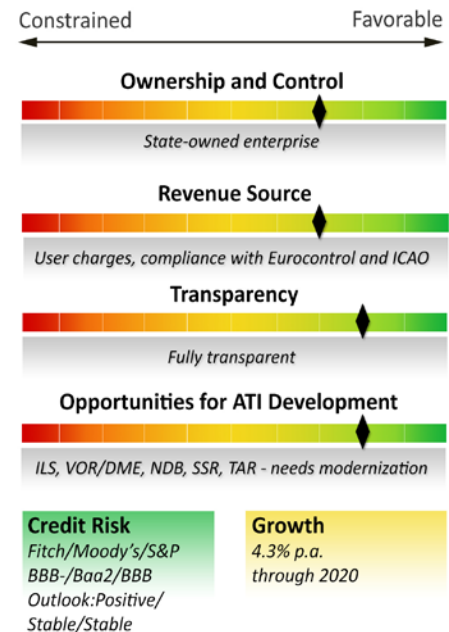
■ NEXA ASSESSMENT

Bulgaria is gaining interest among aerospace companies for several reasons. The Eastern European country enjoys political stability and the lowest tax rates and labor costs in the region, conditions fostering potential opportunities. Geographic location is also an important factor, serving as an excellent launching pad into the EU, Russia, Turkey, and the Middle East. There are no limits on foreign ownership or control or restrictions on foreign investments. Challenges to market opportunities include inefficient bureaucracy, a slow-moving court system, intellectual property rights violations, and a complicated tendering process. After EU accession, Bulgaria adopted regulations and standards of the EU, reducing the substance of some of the challenges.

Supplied almost entirely through imports, Bulgaria's ATI market for aviation equipment, runway systems, and air traffic control equipment and services through 2015 is estimated at approximately US\$200 million. The end market of ATI includes BULATSA, Civil Aviation Administration, six international airports, air carriers, and service companies. Lying directly in the path of routes between Europe and the Middle East and Asia, Bulgaria controls strategic airspace, including responsibility for 28,000 sq kilometers of airspace over the Black Sea.

Eastern Europe in general is considered a low-risk and low-cost market for air transportation, drawing interest from foreign aerospace companies and creating service opportunities. Embraer is increasing its presence in the region with orders on the books for their E-Jet family. The addition of new aircraft families to the region, coupled with limited MRO options and very low labor rates, creates new opportunities in Bulgaria that will be difficult to compete with on a cost-basis.

Opportunities in the country, manifested from liberalized business policy and low labor costs, create new challenges for Bulgaria. With aerospace labor markets leaning more heavily on the demand side for skilled labor, Bulgaria faces challenges with attrition and erosion of capabilities, placing a constant demand for recruitment and training on the air transport industry.



BACKGROUND

- The Bulgars, a Central Asian Turkic tribe, merged with the local Slavic inhabitants in the late seventh century to form the first Bulgarian state. In succeeding centuries, Bulgaria struggled with the Byzantine Empire to assert its place in the Balkans, but by the end of the 14th century the country was overrun by the Ottoman Turks. Northern Bulgaria attained autonomy in 1878, and all of Bulgaria became independent from the Ottoman Empire in 1908. Having fought on the losing side in both World Wars, Bulgaria fell within the Soviet sphere of influence and became a People's Republic in 1946. Communist domination ended in 1990, when Bulgaria held its first multiparty election since World War II and began the contentious process of moving toward political democracy and a market economy while combating inflation, unemployment, corruption, and crime. The country joined NATO in 2004 and the EU in 2007.
- The government is a parliamentary democracy with three branches. Executive— president (chief of state), prime minister (head of government), Council of Ministers (cabinet). Legislative— unicameral National Assembly or Narodno Subranie—240 seats. Members



are elected through a mixed electoral system for four year terms. Judicial— three-tiered system. A constitution was adopted July 1991.

- Bulgaria's economy contracted dramatically after 1989 with the collapse of the Comecon system and the loss of the Soviet market, to which the Bulgarian economy had been closely tied. The standard of living fell by about 40 percent. In addition, UN sanctions against Yugoslavia and Iraq took a heavy toll on the Bulgarian economy. The first signs of recovery emerged when GDP grew in 1994 for the first time since 1988, by 1.4 percent, and then by 2.5 percent in 1995. Inflation, which surged in 1994 to 122 percent, fell to 32.9 percent in 1995. During

1996, however, the economy collapsed due to shortsighted economic reforms and an unstable and de-capitalized banking system.

- The global financial crisis significantly reduced the flow of new investments, which previously supported strong economic growth. Domestic consumption remained weak, and in 2011 export growth recovery slowed, reflecting signs of recession in Bulgaria's major EU trading partners. Faced with tough budget decisions, the government continues to maintain fiscal discipline and a policy of budget deficit reduction by planning a deficit of 1.3 percent of GDP in 2012. In contrast to some Eurozone states, Bulgaria's public finances are not overwhelmed by huge international debt, and its level of government debt (12 percent as of November 2011) remains one of the lowest within the EU.

BRIEF HISTORY

- Bulgarian Air Traffic Services Authority (BULATSA) is a certified ANSP having its seat in Sofia and performing state functions for the provision of air navigation services. BULATSA is responsible for the ANS provision in the controlled civil airspace over the territory of the Republic of Bulgaria and over the high seas of the Black Sea where Bulgaria has been delegated such responsibility, in line with the international agreements in the field of civil aviation signed and ratified by the Republic of Bulgaria.
- BULATSA operates the following air traffic control centers:
 - One Area Control Centre (CNATCC Sofia) in Sofia;
 - Three APPs in Sofia, Varna and Burgas; five TWR Centers in Sofia, Varna, Burgas, Plovdiv and Gorna Oryahovitsa.
- BULATSA also:
 - Operates and maintains nationwide communication, surveillance, navigation, meteorological and AIS networks;
 - Provides licensed training to air traffic controllers.

PERFORMANCE

Employees	1,209
ATCOs	216

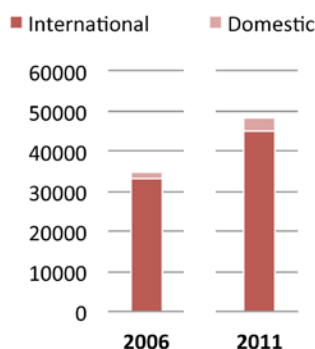
FACILITIES

Towers	5
ACC	1

AIRPORTS

Total	210
Paved Runways > 10,000ft	2
8,000ft – 10,000ft	17
5,000ft to 7,999ft	15
< 4,999ft	96
Heliports	3

Bulgaria Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Bulgarian Airlines by 2011 Scheduled Seats

Bulgaria Air	1,092,964
Balkan Holidays Air	93,492

Top Five Foreign Airlines by 2011 Scheduled Seats

Wizz Air	503,820
Lufthansa German Airlines	252,016
AUSTRIAN A/L AG DBA AUST	205,240
S7 Airlines	118,578
Air France	99,586

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Canada

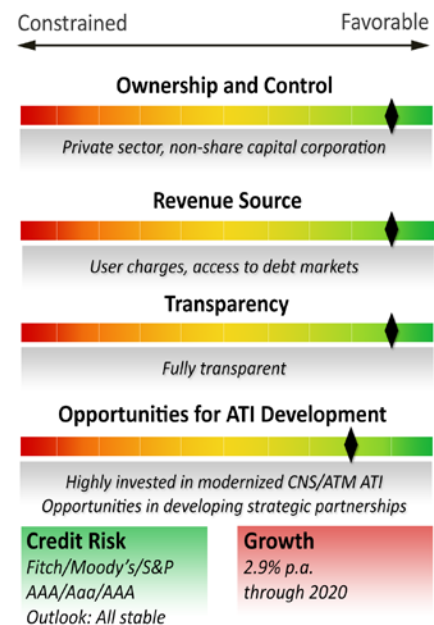
NAV Canada

■ NEXA ASSESSMENT

NAV CANADA has emerged as a dominant ANSP influencing ATI markets around the globe since its inauguration in 1996 as the first private sector company in the world to use a non-share capital structure to commercialize a government service. NAV CANADA's market influence can be attributed to several factors, including its capital structure that allows operations independent from government funding. Canada's harsh regional climate and geographical location underlying routes between the two largest ATI markets were the impetus behind NAV CANADA's success in developing and implementing new ATM products, applications and services that have fostered business opportunities at over 80 sites worldwide, the most recent being deployment of the NAVCANatm technology in the Hong Kong SAR control centers and towers. NAV CANADA is responsible for the busiest oceanic airspace in the world over the North Atlantic, handling up to 1,000 flights per day. The safety and efficiency of these transatlantic flights drove innovative advancements in the oceanic traffic system, pioneering the first oceanic text-based messaging system known as the Gander Automated Air Traffic System (GAATS) in 2002.

Canada's challenging climate led NAV CANADA to develop the technologies needed for the safe passage of commercial operations over terrains unsuitable for traditional technologies. NAV CANADA implemented ADS-B technologies to provide surveillance capabilities for over 1.5 million sq miles of airspace with total benefits projected to 2020 from ADS-B for the Hudson Bay, northeast and oceanic airspace reaching US\$379 million in operational savings and a reduction in GHG emissions of 1,017,000 million metric tons. With experience in developing new technology to solve aviation's ATM problems, NAV CANADA is positioned to be principal player in newly developing ANSP-to-ANSP ATM technology markets.

NAV CANADA's market positions and stable credit ratings, despite the implicit risk of the industry, as well as its high level of business transparency, have attracted the interest of investors and special interest aerospace companies, allowing it to aggressively invest over US\$1.6 billion dollars in new systems and technology since 1996. NAV CANADA will continue to develop a global market presence in ATM technology as ANSPs, both developed and developing, search for innovative and cost-cutting ATM solutions. The North American region isn't projected to be the fastest growing aviation market, but traffic volumes for the region are the largest in the world and are expected to double by 2030. Despite NAV CANADA's abilities to develop cost-cutting solutions, the organization faces higher costs due to a workforce of approximately 5,000, of which 88 percent are unionized. Canada's largest carrier and NAV CANADA's largest stakeholder, Air Canada, operates roughly twice as many scheduled seats per annum as their closest competitor, WestJet. NAV CANADA has thrice received the IATA Eagle Award (2001, 2010, 2011) for the world's "Best Air Navigation Service Provider."



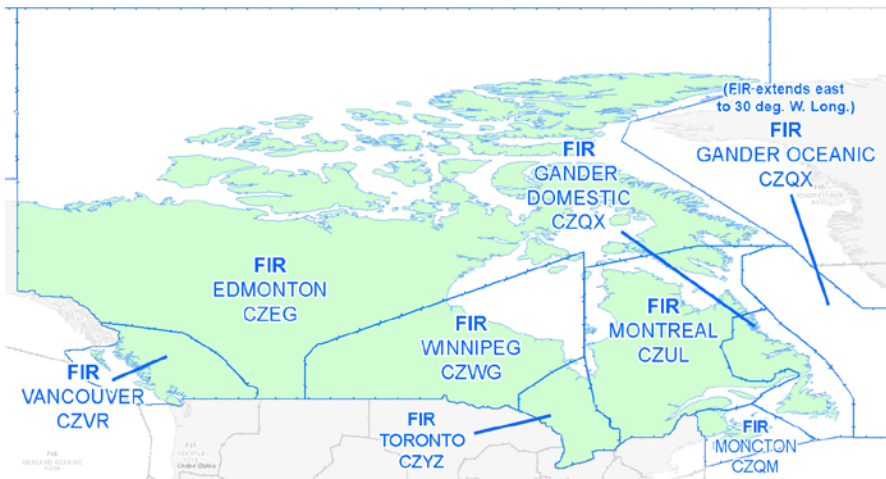
BACKGROUND

- Canada became a self-governing dominion in 1867 while retaining ties to the British crown with a current population of 34.0 million.
- Canada is the second largest country in the world by area.
- Until the global recession of 2008, Canada sustained steady economic growth from 1993 through 2007.
- Following the financial crisis, Canada's major banks emerged among the strongest in the world due to the tradition of conservative lending practices and strong capitalization.
- Economically and technologically, the nation has developed in parallel with the US.
- Canada's government consists of a parliamentary democracy, a federation, and a constitutional monarchy.

- Canada aims to develop its diverse energy resources while maintaining its commitment to the environment.

BRIEF HISTORY

- Canadian regulation of air travel dates to 1939.
- On November 1996, the responsibility for the country's Air Navigation Services' (ANS) network and facilities was transferred from Transport Canada, part of the Canadian federal government, to NAV CANADA for US\$1.5 billion.
- Governed by a 15-member board of directors.
- NAV CANADA is the first private sector company in the world to use a non-share capital structure to commercialize a government service. Independent from government funding through service charges levied on airlines and aircraft operators.



COUNTRIES/REGIONS SERVED

The ANS provides essential services to aircraft operating in Canadian domestic airspace, and in international airspace assigned to Canadian control. Aircraft services provided by the company across the country include air traffic control, flight information, weather briefings, aeronautical information, airport advisory services and electronic aids to navigation.

FIRS

Edmonton, Gander, Moncton, Montreal, Toronto, Vancouver, Winnipeg, and Gander Oceanic (Assigned responsibility by ICAO)

PERFORMANCE

ATCOs	1,770
ANSP Employees	5,085

FACILITIES

Towers	42
ACC	7
Flight Service Stations	57
Flight Information Centers	8

AIRPORTS

Total	1,404
Paved Runways	514
≥ 10,000 ft.	18
8,000 to 10,000 ft.	20
5,000 to 7,999 ft.	148
≤ 5,000 ft.	328
Heliports	12

EQUIPMENT – ATM

- NAVCANatm – integrated air traffic management products, applications and services. NAVCANatm products designed and developed by NAV CANADA are based on systems that are used

operationally by the company for air traffic management.

- NAVCANatm carries two lines of products: NAVCANsuite and NAVCANlink, the former an operational product line, and the latter a web-based decision support product line.

EQUIPMENT – COMMUNICATION

- 50 community aerodrome radio stations

EQUIPMENT – NAVIGATION

- Over 1,000 ground based aids

EQUIPMENT – SURVEILLANCE

- 45 radar sites
- 15 ADS-B sites
- 40 multilateration sites
- Radar coverage is approximately 50 percent geographically. ADS-B for Hudson Bay provides an additional 4 percent. Approximately 95 percent of air traffic flies through radar coverage area

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Canadian Airlines by 2011 Scheduled Seats

Air Canada	35,896,118
WestJet	18,374,305
Porter Airlines	3,410,625
Air Transat	1,219,256
First Air	1,126,188

Top Five Foreign Airlines by 2011 Scheduled Seats

United Airlines	1,977,680
American Airlines	1,687,700
Delta Air Lines	1,452,092

Continental Airlines	972,658
US Airways	840,458

Canada Scheduled Airline O&D Movements



Source: OAG Schedules Database

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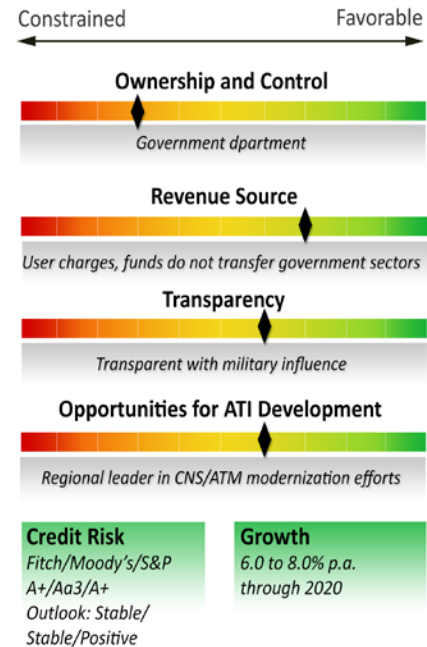
■ NEXA ASSESSMENT

Chile is a unique ATI market that has been a regional leader in developing infrastructure concession laws and implementing new ATM technologies. ANSs are provided under the Dirección General de Aeronáutica Civil de Chile, part of the Ministry of Defense. The DGAC is also responsible for the regulation and security of civil aviation, as well as providing communication, meteorology and search and rescue services. In 2007, the DGAC was awarded the IATA Eagle Award for world's "Best Air Navigation Service Provider."

Due to geographic location, Chile is relatively isolated from the major global markets of North America, Europe and Asia, resulting in an economy heavily reliant on air transportation. Air transportation reliance as a local economic driver is further developed through the characteristics of air traffic serving the country. Due to Chile's geographic characteristics, the country is better suited to serve origin and destination traffic, rather than act as a hub for transfer traffic, limiting the international connectivity of the country. This innate disadvantage has impacted international air service agreements, with Chile pursuing broad open skies policies since the late 1970s, allowing free entry into international and domestic air transport markets with few restrictions.

In 1991, the Ministry of Public Works launched a program to build and upgrade transport infrastructure using concessions, resulting in new regulations allowing the Chilean government to concede the construction and operation of public infrastructure, through competitive biddings, to the private sector. Since official adoption, more than 30 road and airport projects have been awarded. In 1998, a 15-year concession was awarded to SCL Terminal Aéreo Santiago S.A. for Santiago-Arturo Merino Benitez International Airport, which handled 98 percent of Chile's international passenger traffic in 2011.

The DGAC recently inaugurated Santiago's new ATC center, equipped by Thales with the latest generation EUROCAT ATM, AERMAC message-switching and Voice Communication Systems. Chile was also the first country in Latin America to offer CPDLC services, via a SITA workstation, over the Pacific for oceanic flights. The DGAC has become the regional reference for modernization and efficiency through technological innovations and modern concepts. The DGAC maintains open communications with customers and stakeholders on infrastructure investments and improvements.



BACKGROUND

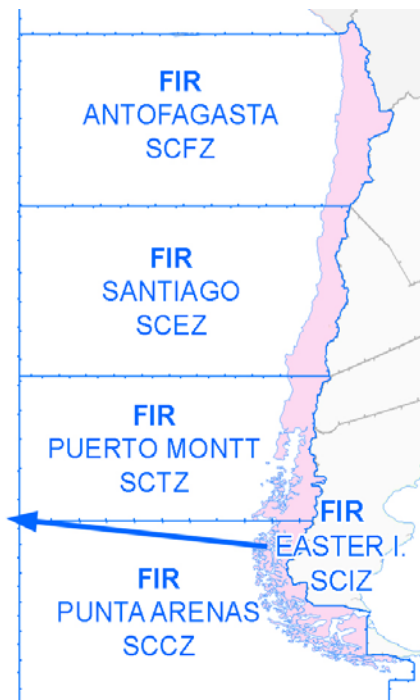
- Prior to the arrival of the Spanish in the 16th century, the Inca ruled northern Chile while the indigenous Mapuche inhabited central and southern Chile. Although Chile declared its independence in 1810, decisive victory over the Spanish was not achieved until 1818. In the War of the Pacific (1879-83), Chile defeated Peru and Bolivia and won its present northern regions.
- Chile has increasingly assumed regional and international leadership roles befitting its status as a stable, democratic nation, with a population of 17 million (June 2010).
- The government is a republic with an Executive – president. Legislative – bicameral legislature and Judicial branch – Constitutional Tribunal, Supreme Court, court of appeals, military courts.
- The Constitution was promulgated September 1980, effective March 1981, and amended in 1989, 1993, 1997, and 2005.
- With a GDP (Central Bank of Chile data 2010 estimate) of US\$203.9 billion, Chile has pursued sound economic

policies for nearly three decades. The government's role in the economy is mostly limited to regulation, although the state continues to operate copper giant Codelco and a few other enterprises, including one state-owned bank– Banco Estado. Chile joined the Organization for Economic Cooperation and Development (OECD) in 2010, the first South American nation to do so.

- In March 2008, the Central Bank began a program of buying dollars to slow the appreciation of the peso, and then suspended those operations in November 2008 when the peso depreciated significantly because of the global financial crisis. The peso strengthened 8.4 percent in 2010, and in January 2011, the Central Bank announced it would purchase US\$12 billion in reserves over 2011 to slow the appreciation of the peso.

BRIEF HISTORY

- The DGCA is a governmental institution that rules over civil aviation matters, with its headquarters in Santiago and with local authorities in every place with a public



aerodrome or international airport. It maintains and certifies the the whole ground network of telecommunication systems and other equipment. The DGCA tests and repairs equipment installed in control towers, area centers of air traffic, ground systems, etc.

- The DGCA provides Chilean aviation and foreign operators in Chile with the necessary services for the security and regulation of air navigation. It participates directly in the planning of aeronautical infrastructure, and contributes to national integration and regional development.
- It is responsible for the security of the civil aviation system and keeps watch over the application and observance of aeronautical rules. It performs the certification and technical control of airplanes, the inspection and control of aeronautical operators and industry, and control and inspection of aeronautical licenses.
- It guarantees the training and quality of aeronautical personnel through its Aeronautical Technical School.
- It operates closely with other organizations, general aviation, airlines, maintenance centers, aviation schools, and different public services.

PERFORMANCE

Employees	2,962
ATCOs	256

Airports

Total	366
Paved Runways:	84
> 10,000	5
8,000 – 10,000	8
5,000 to 7,999	23
< 4,999	48

EQUIPMENT – NAVIGATION

- Summary: Satellite Navigation by GPS
- Geostationary communication satellites
- Ground stations

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

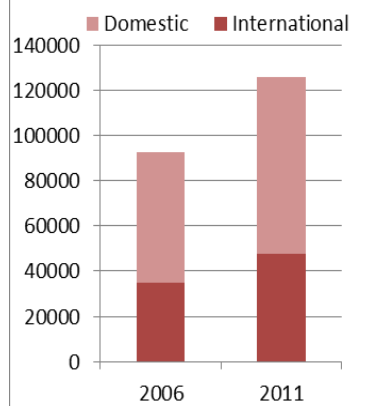
Top Five Chilean Airlines by 2011 Scheduled Seats

Lan Airlines	9,173,241
Sky Airline	2,968,950
Aerolinea Principal	749,880

Top Five Foreign Airlines by 2011 Scheduled Seats

Aeroleinas s	197,174
TAM Linhas Aereas	196,781
American Airlines	182,025
Air Canada	157,448
Copa Airlines	156,420

Chile Scheduled Airline O&D Movements



Source: OAG Schedules Database

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China

Civil Aviation Administration of China (CAAC)

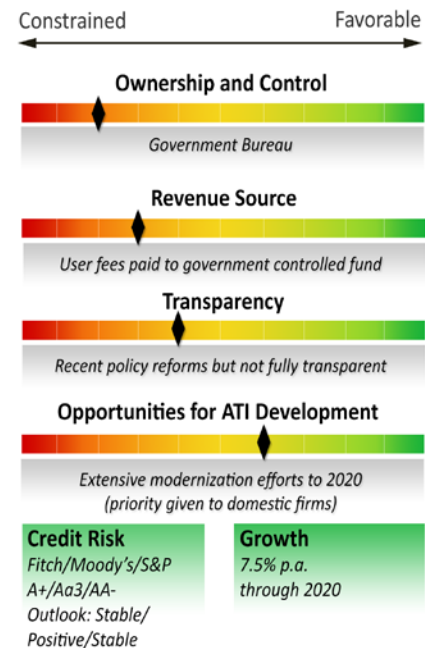
■ NEXA ASSESSMENT

China has the second largest air transportation market in the world after the US. With an annual growth rate of 9.6 percent over the last five years and an aggressive “Twelfth Five-Year Plan” outlining airport and ATM upgrades, China’s civil aviation sector is on track to compete head to head with the US for rights as the largest air transportation country. The CAAC’s strategy outlined in the latest five-year plan is aimed at ensuring continued safety, speeding up infrastructure construction, improving the air transport network, enhancing the quality of transport, and actively developing general aviation.

Airport construction in China is scheduled to accelerate with the total number of airports increasing from 175 in 2010 to 244 in 2020, including a new international hub in Beijing to support Beijing Capital International Airport, the world’s second busiest airport. The Chinese government’s focus on increasing domestic consumption will drive domestic travel demand, especially to small and medium cities which are currently inaccessible by air. The industry will grow from increased market access supported by additional planned and regional airports in small to medium-sized cities. Rapid infrastructure development, as outlined in the Five-Year Plan, is feasible due to highly liberalized airport policies aimed at attracting private sector investment, both domestic and foreign, in Chinese airports through operational management and infrastructure capital.

China currently has a much lower flights-per-capita than other developed economies, but recent efforts to extend the networks and competitiveness of China’s three largest carriers through leveraging global alliances could bring the numbers up. In order to facilitate additional passenger traffic, Chinese airlines must overcome challenges with runway and airspace capacity around major airports. By proactively opening markets through liberal air service agreements and increasing competitiveness of the three state-owned air carriers, network strategies have shifted away from point-to-point towards a hub-and-spoke model, increasing bottlenecks and costly delays around hub airports.

China’s Air Traffic Management Bureau, through strategic partnerships with aerospace companies, foreign ANSPs, and Chinese airports and airlines, is developing and implementing ATM technologies and PBN procedures as part of the Five-Year Plan to improve the air transport network. Although China has implemented progressive policy reform separating airport ownership and management from government, the ATMB, responsible for provision ANSSs, remains a government department under the CAAC.



BACKGROUND

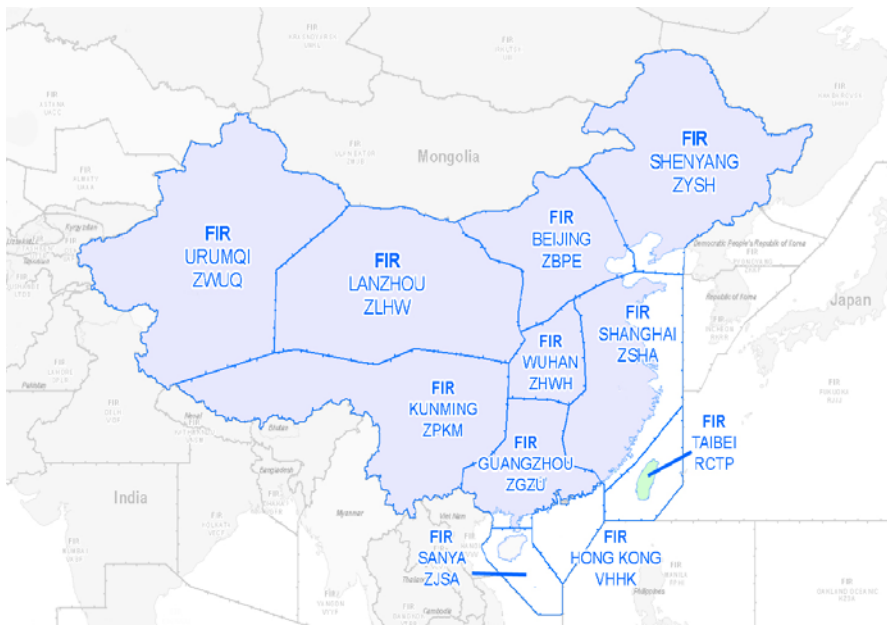
- Chinese state media has said Chinese airlines are expected to nearly double their fleets, to a total of as many as 5,000 jet aircraft, by 2015.
- Civil aircraft and related technology equipment is still highly dependent on import, which means a huge demand for independent innovation. There are three core strategies: sustainable security, popularization, globalization.
There are six strategic tasks
 - ◇ Civil aviation development
 - ◇ General aviation development
 - ◇ Airport development
 - ◇ ATC development
 - ◇ Support system development
 - ◇ Government services development
- China is expected to push further consolidation

of its airlines to improve international competitiveness as high-speed rail and other modes play greater roles in domestic transportation.

- Since 1978, China has reformed and opened its economy. The Chinese leadership has adopted a more pragmatic perspective on many political and socioeconomic problems and has reduced the role of ideology in economic policy.
- In 2010, China overtook Japan to become the world’s second-largest economy in terms of gross domestic product, behind the United States.

BRIEF HISTORY

- CAAC regulates China’s airlines, airports, and air lanes. Under a restructuring plan that began in 2002, it has slowly reformed to act more as an independent aviation regulator than as a commercial manager of multiple



airlines. This includes lowering CAAC involvement in civil-airport control. CAAC manages 89 airports independently and five airports jointly with local authorities, while 35 airports are already fully under local control. CAAC plans to relinquish direct control over all airports except for Beijing Capital Airport and Tibet's Lhasa Gongga Airport. In March 2008, CAAC was moved under the supervision of the new Ministry of Transportation.

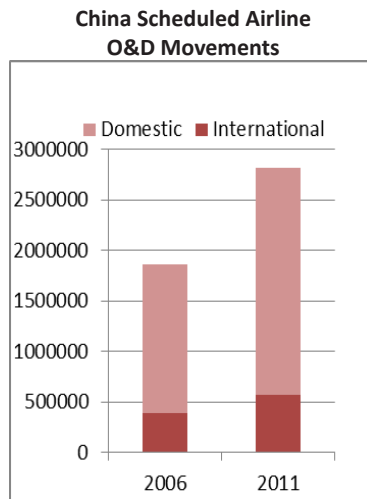
- As part of its specific responsibilities, CAAC
 - ◊ Drafts policies, development strategies, laws, rules, and regulations for civil aviation, including standards and personnel qualifications.
 - ◊ Oversees the air transportation and aviation market, including the issuance of aviation enterprise licenses, establishment of air fares and wage policies, and coordination of aircraft procurement.
 - ◊ Ensures flight safety, airworthiness, and aviation security; investigates accidents; and manages and approves flight routes and orders.
 - ◊ Oversees aviation negotiations and contracts with overseas partners and represents China in international civil aviation organizations and inter-governmental activities.

AIRPORTS

Total	502
Paved Runways	442
> 10,000ft	63
8,000ft – 10,000ft	137
5,000ft to 7,999ft	132
< 4,999ft	110
Heliports:	48

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Chinese Airlines by 2011



Source: OAG Schedules Database

Scheduled Seats

China Southern Airlines	81,320,087
China Eastern Airlines	68,474,660
Air China	55,936,425
Hainan Airlines	21,400,534
Shenzhen Airlines	20,113,219

Top Five Foreign Airlines by 2011

Scheduled Seats

Asiana Airlines	2,337,640
Korean Air	2,189,249
All Nippon Airways	1,894,593
Singapore Airlines	1,738,823
Thai Airways Intl	1,538,097

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Colombia

Aeronautical Civil de Colombia

■ NEXA ASSESSMENT

Security in Colombia has improved significantly in recent years, including in tourist and business travel destinations such as Cartagena and Bogota, but violence by narco-terrorist groups continues to affect some rural areas and large cities. Colombia's natural attractions and vibrant culture can offer an appealing destination for tourists, especially in the fast growing sector of eco-tourism, and air transport accounts for over 85 percent of international tourist arrivals. Colombia's air travel has grown an average of eight percent per year over the past five years. Although international connectivity of Colombia has increased significantly, it still remains relatively low compared to other countries. There is, however, an excellent internal air network connecting major cities, including those in the Caribbean coastal area.

The growth has caused an increased pressure on the airports' structure and personnel. El Dorado Airport is the largest in Colombia and the main international and domestic air gateway serving as an important hub for Avianca (the national flag carrier of Colombia), Copa Airlines Colombia, LAN Colombia, Satena, EasyFly, and other cargo companies. It is managed by Operadora Aeroportuaria Internacional (OPAIN), a consortium composed of Colombian construction and engineering firms and the Swiss Flughafen Zürich AG.

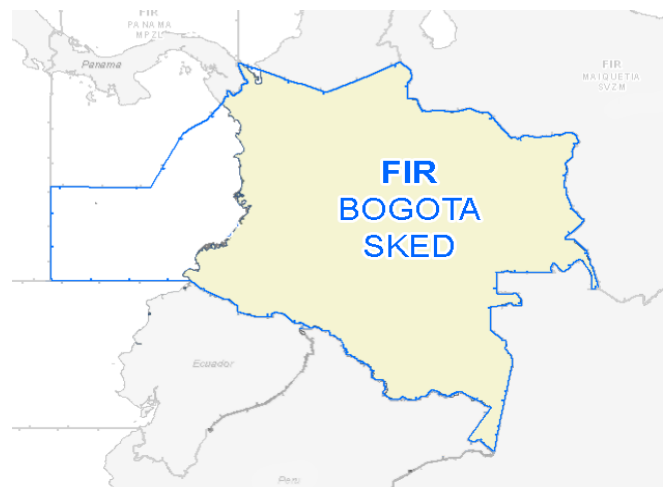
The Transport Ministry expects investments of more than US\$45 billion on transportation infrastructure throughout the country over the next ten years, and has plans to attract private companies both in Colombia and from abroad to provide more than 30 percent of the targeted investment. According to the World Economic Forum, inadequate infrastructure is the second biggest problem for doing business in Colombia and its air traffic management needs a major overhaul to bring it into the modern era.

IATA sees potential for a 30 percent increase in airspace capacity with more efficient use of El Dorado Airport's parallel runways, revised approach and departure procedures, enhanced controller training, and implementation of RNAV and PBN. Colombia recently unveiled plans to invest US\$197 million into the air transport sector for infrastructure, technology, radar and communications. Focus areas include: tower control equipment, radars, VHF omnidirectional radio range (VORs), GPS and ADS-B equipment, instrument landing systems (ILS), meteorological and communications equipment, and air traffic control (ATC) and information systems.



BACKGROUND

- Northern South America, bordering Ecuador and Panama, land area of 1,138,910 sq kilometers and population of 44.7 million people.
- Colombia was one of the three countries that emerged from the collapse of Gran Colombia in 1830. (The others are Ecuador and Venezuela.) A four-decade long conflict between government forces and anti-government insurgent groups, principally the Revolutionary Armed Forces of Colombia (FARC), heavily funded by the drug trade, escalated during the 1990s.
- The Colombian government has stepped up efforts to reassert government control throughout the country, and now has a presence in every one of its administrative departments. However, neighboring countries worry about the violence spilling over their borders. In January 2011, Colombia assumed a nonpermanent seat on the UN Security Council for the 2011-12 term.



AIRPORTS

Total	990
Paved Runways	116
> 10,000ft	2
8,000ft – 10,000ft	8
5,000ft to 7,999ft	41
< 4,999ft	65
Heliports	2

EQUIPMENT – ATM

- Aircon 2100 ATC System (Indra, 2008)

EQUIPMENT – COMMUNICATION

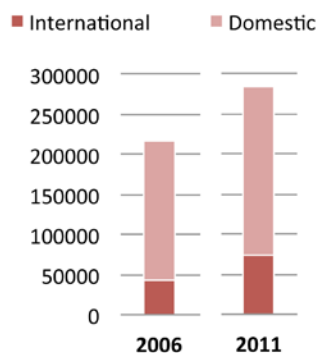
- 2 VOIP 2100 systems (Indra, 2008)

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Colombian Airlines by 2011 Scheduled Seats

Avianca	13,863,762
Aires	4,609,761
Copa Airlines	3,281,058
Satena	1,272,796

Colombia Scheduled Airline O&D
Movements



Source: OAG Schedules Database

Top Five Foreign Airlines by 2011 Scheduled Seats

Lan Airlines	424,066
American Airlines	273,373
Aerogal	237,509
Iberia	195,116
Taca Intl Airlines	179,095

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Title: Jefa de Proyectos Internacionales

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Egypt

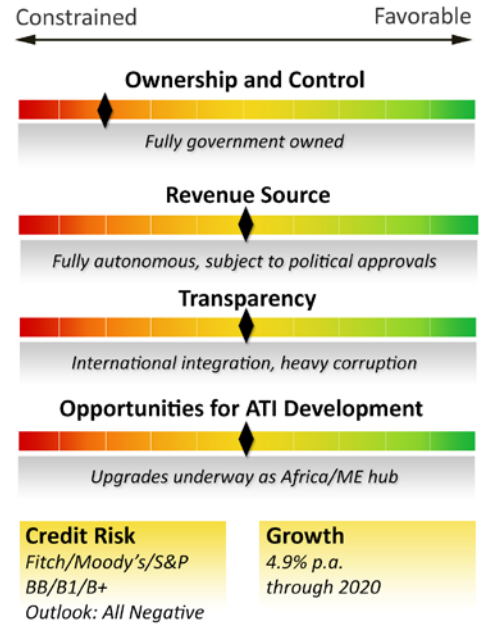
National Air Navigation Services Company (NANSC)

■ NEXA ASSESSMENT

In 2010 there were 142 routes connecting Egypt to urban centers around the world, with an average of 1.5 outbound flights per day along these routes. The five largest airports in Egypt – Cairo International, Sharm El Sheik International, Hurghada International, Luxor International and Alexandria International – handle almost 36 million passengers a year. Political uncertainty and conflict has been a difficult impediment to the country in recent years, and may impact Egypt’s position as a preferred hub within northern Africa and the Middle East.

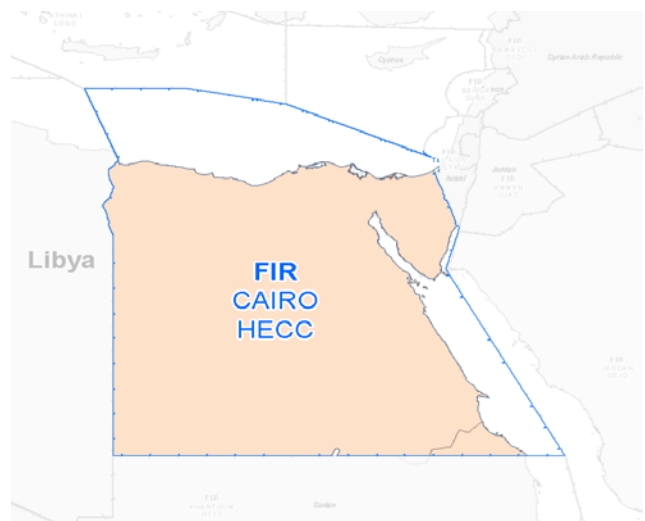
Given the country’s geography and the dispersed locations of its main tourist areas (those already in existence and under development), together with concerns about tourist security, air transport is the preferred mode of transport for international visitors travelling within Egypt. The country’s government-controlled airline, EgyptAir, operates without major competitive pressures within the country. Some loosening of these restrictions, such as the removal of Egyptair’s domestic monopoly over resort-bound routes, have improved tourism prospects but despite these positive effects, the Egyptian civil aviation authorities have continued to impose some restrictions and limitations on private airline operations.

Air traffic control services are adequate. Cairo FIR, a million square NM RVSM airspace, is mostly covered by radar and is also served by a fully-equipped ACC and eight TMAs serving eight international airports with ASRs. National Air Navigation Services Company (NANSC) was originally set up as an independent entity affiliated to the Egyptian Holding Company for Airports and Air Navigation. Air traffic control towers are being renovated by Frequentis to include high-reliability voice communications systems. Also, having recognized the inevitable desire of operators to make full use of evolving aircraft capabilities, NANSC has implemented PBN procedures at the main international airports such as Sharm El-Sheikh, Hurghadah, Luxor, Aswan, Borg El-Arab, Taba, El-Arish and Asuit.



BACKGROUND

- Egypt has been ruled by a series of dynasties since 3200 B.C.
- Egypt borders Libya, Sudan, Gaza Strip, Israel, the Mediterranean Sea, the Gulf of Suez and the Red Sea, with a population of 82.1 million.
- The government has struggled to meet the demands of Egypt’s growing population through economic reform and massive investment in communications and physical infrastructure.
- Following the completion of the Suez Canal in 1869, Egypt became an important world transportation hub, but also fell heavily into debt.
- A rapidly growing population (the largest in the Arab world), limited arable land, and dependence on the Nile all continue to overtax resources and stress society.
- Recently appointed Vice President Suliman announced Mubarak’s resignation and the assumption of national leadership by the Supreme Council of Armed Forces (SCAF) in February 2011.
- In July 2011, opposition discontent over the slow pace of SCAF progress in transitioning the government led to a resumption of protests in Cairo and over a dozen other



- cities.
- A presidential election was held in Egypt in June 2012. The Muslim Brotherhood declared that its candidate, Mohammed Morsi, won Egypt’s presidential election, which would be the first victory of an Islamist as head of state in the Arab world.

BRIEF HISTORY

- In 2001, Egyptian Civil Aviation Authority was reorganized into two different entities :
 - ◊ Egyptian Civil Aviation Safety and Security (ECASSA)
 - ◊ Egyptian Holding Company for Airports and Air Navigation.
- Egyptian Holding Company for airports and aviation services includes four affiliated companies :
 - Egyptian Airports Company (EAC)
 - National Air Navigation Services Company (NANSC)
 - Cairo Airport Company (CAC)
 - Aviation Information Technology (AVIT)
- Egypt has one of the leading Air Navigation Service Providers in Africa and the Middle East. NANSC, a state owned company, is committed to the provision of air traffic management services within the Egyptian airspace serving 22 airports.

COUNTRIES/REGIONS SERVED

Cairo

PERFORMANCE

Employees 2,265
ATCOs 700

FACILITIES

Towers 22
ACC 1
Approach Control 8

AIRPORTS

Total 86
Paved Runways 73
> 10,000ft 15
8,000ft – 10,000ft 36
5,000ft to 7,999ft 15
< 4,999ft 7
International 8
Heliports 6

EQUIPMENT – ATM

- 8 TMA Workstations

EQUIPMENT – COMMUNICATION

- 19 Hot line
- 38 PABX telephone lines
- 25 AFTN lines
- 19 AIS lines
- 12 fire service

- 19 Engineering service channels
- 3 DATIS lines
- RIMS stations

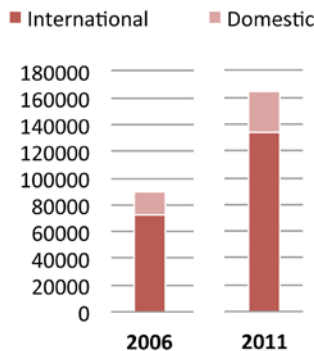
EQUIPMENT – NAVIGATION

- 12 CVOR/DME
- 7 DVOR/DME
- 5 NDB
- 15 ILS (+2 planned)

EQUIPMENT – SURVEILLANCE

- 6 Enroute SSS (5 with Mode S)
- 8 Approach radars
- 2 Surface movement radar
- MLAT- Project Underway in Cairo

Egypt Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Egyptian Airlines by 2011 Scheduled Seats

Egyptair	7,561,228
Almasria Universal Airlin	330,561
AIR ARABIA EGYPT	185,004
<i>Top Five Foreign Airlines by 2011 Scheduled Seats</i>	
Saudi Arabian Airlines	1,058,666
Transaero Airlines	638,261
Thomson Airways	562,598
Jazeera Airways	258,057
National Air Services-NAS	204,714

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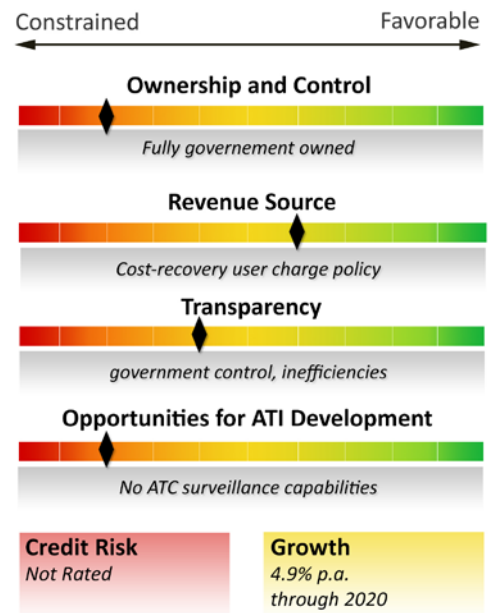
Ethiopia

Ethiopia Civil Aviation Authority (ECAA)

■ NEXA ASSESSMENT

Ethiopia is one of the busiest air transportation hubs in Africa. Linked to the ascendancy of the national airline, Ethiopian Airlines, Addis Ababa Bole International Airport has become one of the three main international gateways for Sub-Saharan Africa and is especially active serving cargo transportation. The land and airside infrastructure at the airport is of good quality and generally adequate to handle current traffic levels and anticipated growth. Air traffic control is its greatest weakness, as there is no air traffic surveillance technology in place. Fortunately, IATA rates Ethiopia as having instituted “good” oversight over safety programs. The country is active in internationally outreach; it has recently signed an intergovernmental agreement on air traffic with the Ukraine to expand service between the two countries.

China is actively investing in Ethiopian infrastructure (as in Africa at large). While that investment has been limited mostly to surface and rail projects, it is expected that Chinese capital will flow into air traffic projects as well. China is an increasingly important source of external finance and currently contributes 20 percent of total capital expenditure. Private participation is conspicuous by its absence, where the lack of a liberalized regulatory framework and competitive market structure hampers provider diversification. In addition, the government has stated a willingness to discuss a privatization of its stated-owned enterprises, including Ethiopian Airlines. Given the success of its national airline, activity of its hub, and outreach efforts, Ethiopia should be positioned to provide returns on investment in air traffic infrastructure if it can offer requisite market and regulatory conditions.



BACKGROUND

- Unique among African countries, the ancient Ethiopian monarchy maintained its freedom from colonial rule with the exception of a short-lived Italian occupation from 1936-41. In 1974, a military junta, the Derg, deposed Emperor Haile Selassie (who had ruled since 1930) and established a socialist state. Torn by bloody coups, uprisings, wide-scale drought, and massive refugee problems, the regime was finally toppled in 1991 by a coalition of rebel forces, the Ethiopian People’s Revolutionary Democratic Front (EPRDF). A constitution was adopted in 1994, and Ethiopia’s first multiparty elections were held in 1995.
- It is the oldest independent country in Africa and one of the oldest in the world – at least 2,000 years.
- Its government is a federal republic which consists of three branches: Executive– president, Council of State, Council of Ministers. Executive power resides with the prime minister. Legislative– bicameral parliament. Judicial– divided into federal and regional courts.
- Ethiopia is located in the Horn of Africa and is bordered by Eritrea, Djibouti, Somalia, Kenya, South Sudan, and Sudan.
- The Ethiopian Civil Aviation regulates and controls civil aviation in Ethiopia including air navigation services.

BRIEF HISTORY

- In 1929 a French-made airplane flown by French pilot



Andre Milet landed on the western side of Addis Ababa enroute from Djibouti.

- In 1930 Gaston Vedel, a French flight instructor, established the first pilot training school in the town of Jijiga where Mishka Babichief and Asfaw Ali were certified to be the first Ethiopian pilots.
- The Ethiopian government was invited by the United States to attend the Chicago conference of December 1944. Ethiopia was one of the few African nations to sign the convention of the International Civil Aviation Organization. This same year another major step was taken by the government of Ethiopia when the Civil

Aviation Authority was founded. In 1945 Ethiopian Airlines was founded with six World War II surplus DC-3/c-47 airplanes. The Ethiopian Civil Aviation regulates and controls civil aviation including air navigation services.

- In 1951 through the technical assistance provided by the International Civil Aviation Organization, an aviation school was opened in Addis Ababa. The first 60 students were trained in communications, navigation, aircraft metrology, and radio operations and maintenance.

COUNTRIES/REGIONS SERVED

Air Navigation concerning the entire Addis Ababa Flight Information Region (FIR).

AIRPORTS

Total	61
Paved Runways	17
> 10,000ft	3
8,000ft – 10,000ft	8
5,000ft to 7,999ft	4
< 4,999ft	2

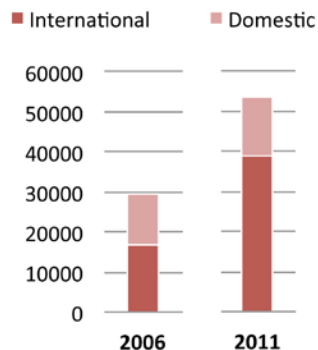
EQUIPMENT – ATM

- 1 ATFN station (Addis Ababa)

EQUIPMENT – NAVIGATION

- 4 VOR/DMES,
- 1 DVOR/DME,
- 2 Instrument Landing Systems - ILS
- NDBs

Ethiopia Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Ethiopian Airlines by 2011 Scheduled Seats

Ethiopian Airlines	3,221,028
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Top Five Foreign Airlines by 2011 Scheduled Seats

Emirates Airlines	188,340
National Airways	136,050
Lufthansa German Airlines	62,901
Turkish Airlines	58,740
Kenya Airways	52,328

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France

Directorate of Air Navigation Services (DSNA)

■ NEXA ASSESSMENT

France, one of the most visited tourist destinations in the world, supports the air transportation industry through passenger and cargo traffic and is home to major aerospace suppliers Airbus and Thales. Direction des Services de la Navigation Aérienne (DSNA) activities are bifurcated into an operations department, which involves all en-route, approach and aerodrome control operations, and the technical and innovation department, which is tasked with applied research, operational systems development and technical equipment supply. DSNA is financially autonomous with access to capital markets, recovering services costs through user fees, but is still a government department with economic regulation under the Minister of Transport. Safety regulation for civil aviation in France, also a government department under the Ministry of Transport and the DGCA, has been separated from service provision but is still within arm's length, raising possible conflict of interest concerns for stakeholders. DSNA has no governing board structure.

DSNA faces challenges with the omnipresent focus on cost control within the aviation community. Because air traffic control is a French public service, controller recruits must pass civil service exams before entering service. Once hired, controllers must be retained, even though they may not qualify during the training process or may later lose qualifications, leading to higher costs from inefficient recruitment policies that must take into account the long-term perspective of new ATCOs. DSNA currently employs roughly 4,000 ATCOs to control 1,160,000 sq kilometers of airspace, compared to the UK's NATS ANSP, which employs roughly 2,000 ATCOs to control 3,000,000 sq kilometers of airspace.

Of the six countries forming the FABEC area, which controls approximately 55 percent of all European air traffic, DSNA is responsible for controlling the most airspace, giving France considerable leverage in coordinating international action on the future of the cornerstone airspace block of the Single European Sky. DSNA has awarded a contract for its future ATM system, 4-FLIGHT, to Thales, with the system to be deployed in all en-route centers and major approaches by 2020. 4-FLIGHT will be fully interoperable with other ANSP ATM systems and meet SESAR requirements, establishing 4-FLIGHT as a foundation for the SESAR program. DSNA has additional experience working with ANSPs and aerospace companies within FABEC. DSNA, Maastricht Upper Area Control and Frequentis have aligned to develop, deploy and maintain a new-generation voice communication system, with services beginning in 2014. These projects further align DSNA's CNS/ATM infrastructure with FABEC and SESAR initiatives, driving the Single European Sky concept towards reality.

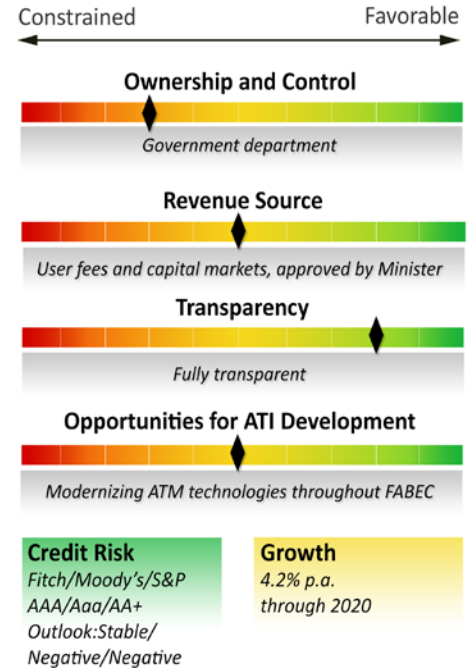
Air France-KLM, with major hubs at Paris-Charles de Gaulle and Amsterdam-Schiphol, operates on three core businesses: passenger, cargo and maintenance. Air France-KLM operates the largest international long-haul network departing from Europe, with routes serving Asia and Africa-Middle East earning 20 percent and 16 percent respectively of total passenger revenues. The French government currently owns 15.7 percent Air France-KLM.

BACKGROUND

- France was one of the earliest countries to progress from feudalism to the nation-state. Its monarchs surrounded themselves with capable ministers, and French armies were among the most innovative, disciplined, and professional of their day.
- It has a population of 65 million (est 2010).
- France's government is a republic consisting of three branches: an Executive, Legislative and Judicial.

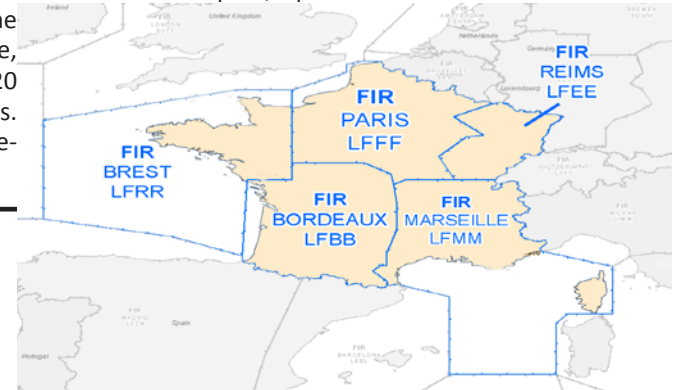
BRIEF HISTORY

- In 2005, the DGAC was reorganized and placed the Air Navigation Services Directorate (DSNA) directly under the authority of the Director General of Civil Aviation.



4-FLIGHT will be fully interoperable with other ANSP ATM systems and meet SESAR requirements, establishing 4-FLIGHT as a foundation for the SESAR program. DSNA, Maastricht Upper Area Control and Frequentis have aligned to develop, deploy and maintain a new-generation voice communication system, with services beginning in 2014. These projects further align DSNA's CNS/ATM infrastructure with FABEC and SESAR initiatives, driving the Single European Sky concept towards reality.

Air France-KLM, with major hubs at Paris-Charles de Gaulle and Amsterdam-Schiphol, operates on three core businesses:



- The 2005 reform of the DGAC was motivated by a greater need to balance its regulatory functions with the need to adapt to new challenges in the market for civil aviation. Additionally, the reforms enable the DGAC to ensure more efficient delivery of services while strengthening the safety and security of air transport. The European Single Sky regulations also played a large role in the restructuring of the DGAC. Member states are required

to separate the role of operations from the role of supervision. Thus, air navigation operations are now provided by the DSNA while compliance is managed by the DCS. Furthermore, the French government has implemented a new model of public sector financing based on programming and performance budgeting. The DSNA is identified as a specific budgetary program, an integral part of the supplementary budget of Civil Aviation.

- Air navigation services are provided through five area control centres – at Athis-Mons, Brest, Reims, Bordeaux and Aix-en-Provence – and 85 airports managed through 11 regional divisions (nine mainland and two overseas). In 2009, the ATS units operated by DSNA controlled 2,700,546 flights (+0.01 percent over 2009). The peak day was recorded on 11 July 2008 when they handled 10,018 IFR flights.

COUNTRIES/REGIONS SERVED

DSNA serves the Brest, Bordeaux, Paris, Marseille, and Reims Flight Information Regions (1,000,000 sq km), providing terminal, enroute and oceanic IFR/VFR air traffic control, meteorological and aeronautical information and publications services for commercial, general aviation and military customers. It also controls oceanic airspace west into the Atlantic Ocean and South into the Mediterranean Sea over Corsica.

PERFORMANCE

Avinor Employees:	8,034
ATCOs:	2,677
ATCO (2009):	1,826

FACILITIES

Towers	81
ACC	5
Approach Control Centers	12

AIRPORTS

Total	475
Paved Runways	297
10,000 ft.	14
8,000-10,000 ft.	27
5,000-7,999 ft.	98
≤ 4,999 ft.	159
Heliport	1

EQUIPMENT – COMMUNICATIONS

- New VCS system to be deployed in

2014

- Renovation of VHF reception stations at Paris-Orly Airport
- Hanvec VHF station, including microwave link, was installed in 2009
- UHF equipment renovation at Sainte-Baume station completed in 2008
- Microwave link equipment at Colorado – La Reunion island station commissioned in 2008

EQUIPMENT – NAVIGATION

- 3 VORs installed in 2008 (Rouen, Troyes, and Deauville)
- Istres Doppler VOR installed in 2009
- Installation of VOR at Boulogne-sur-Mer started end of 2008
- 20 RNAV procedures

EQUIPMENT – SURVEILLANCE

- 4 Mode S radars using Mode S interrogation
- 7 Mode S radars using Modes A/C interrogation
- 2 Mode S radars installed but not yet operational
- 1 Mode S radar being installed
- 5 En Route SSR
- 3 ADS-B Ground Stations in New Caledonia contracted by DSNA

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five French Airlines by 2011 Scheduled Seats

Air France	48,299,213
CCM Airlines	1,585,696
Aigle Azur	1,271,284
Corsair Intl	871,096
Transavia.com (France)	753,468

Top Five Foreign Airlines by 2011 Scheduled Seats

EasyJet	8,364,887
Ryanair	4,706,289
Lufthansa German Airlines	2,542,288
Royal Air Maroc	1,696,987
British Airways	1,514,178

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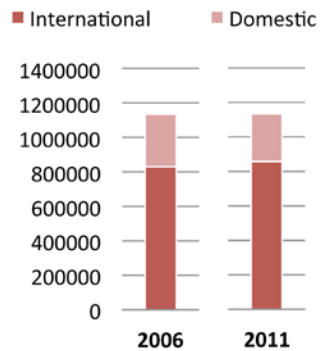
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Source: OAG Schedules Database

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 Name: Francis Massé
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Federal Republic of Germany

Deutsche Flugsicherung GmbH (DFS)

■ NEXA ASSESSMENT

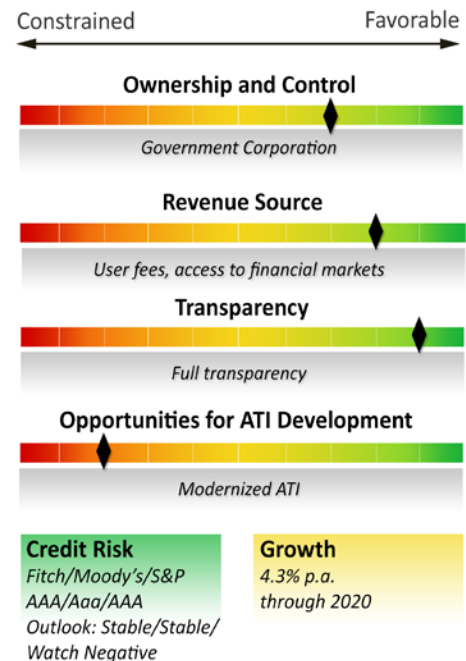
DFS (Deutsche Flugsicherung GmbH), the German air navigation service provider, is a state-owned company under private law. Controlling air traffic over Germany is the core function of DFS, handling up to 10,000 movements in German airspace per day and more than 3 million movements per annum, currently the highest traffic volumes in Europe. The commercialized structure of DFS and the competitive performance of ATC operations have propelled the company into providing additional ATM services including ATM systems, surveillance systems, navigation aids, training, and consultancy.

DFS and strategic technology partners are pushing ATM capabilities to new levels. Recent approval by Germany’s ANS Authority for the use of GBAS as the primary landing system makes DFS the first ANSP to use GBAS for CAT1 precision approaches for regular air services. Germany is leading Europe towards the new 4D-trajectory management paradigm with a strategic partner, Indra, who developed the recently implemented P1/VAFORIT ATS system and is currently developing the next generation iCAS system, the German version of the European iTEC system, to be installed in German control centers over the next 10 years. Cooperative efforts between DFS, NATS, AENA, LVNL and Indra are leading the way for greater efficiency of European airspace through the use of iTEC systems.

DFS is also developing the European satellite navigation system EGNOS in cooperation with six other European ANSPs. DFS is represented by its DFS European Satellite Services Provider Beteiligungsgesellschaft GmbH, making financial contributions and providing infrastructure facilities. DFS is pressing ahead with interest in acquiring partial ownership of NATS, believing the flow of traffic from north-west to south-eastern Europe could benefit from consolidating ATC services.

Foreign control of airspace, especially to an organization that is responsible for both civil and military operations in Germany, is a controversial concern for Britain’s government. German acquisition of foreign airspace would be the harbinger for consolidation of European airspace, which suffers from inefficiencies due to trans-border redundancies of services and jealous guarding of national control of operations.

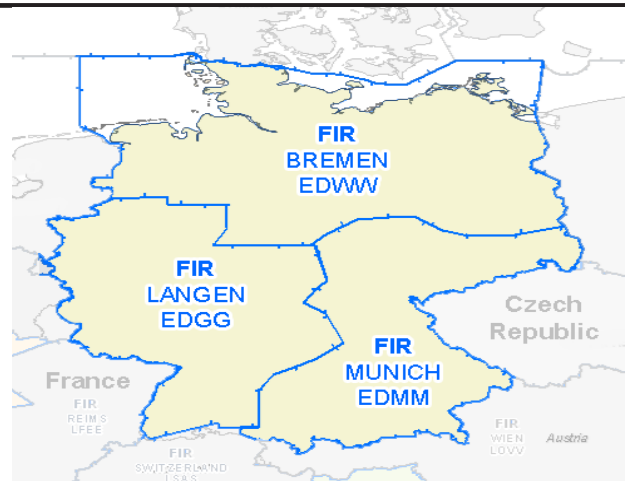
Multinational airspace control under a single ANSP would open new markets for DFS and its full range of services, particularly to the fast growing markets in Asia and Africa, searching for turnkey operations to handle projected increase in demand. Similar to other EU countries, Germany faces escalating clashes with labor unions, resulting in disruptions to service. Speculation over the ambitions of transport state secretary Klaus-Dieter Scheurle to become CEO of DFS could impact negotiation outcomes.



BACKGROUND

- Germany was occupied by the Allied powers following the conclusion of WWII. Two German states were formed in 1949. In 1990 Germany was unified into a single state.
- Germany is currently Europe’s largest economy and has the second largest population with 81.4 million.
- Germany is a member of the European Union and uses the European Exchange currency, the euro.
- President Christian Wulff was elected in June 2010 to serve a 5 year term and is eligible for a second term.
- Chancellor Angela Merkel was elected by an absolute majority of the Federal Diet and is currently serving her second four-year term.

BRIEF HISTORY



- Every year approximately 2.5 million aircraft take off and land at German airports and overfly German territory. The German air navigation services have been ensuring safety and punctuality in German airspace for over 50 years.
- After Germany's reunification, BFS was commercialized through the amendment of the German Constitution. In October 1992, the Deutsche Flugsicherung GmbH (DFS) was established as a limited liability company, which is wholly owned by the federal government and governed by private company law. In January 1993, DFS formally succeeded BFS and commenced operation. Since 1994, DFS has been responsible for performing not only civil but also regional military air traffic control.
- In December 2004, the federal government announced a plan to change the ownership of DFS, selling 74.9 percent of its equity to private investors and reorganizing it as a public-private partnership (PPP), along the lines followed by the United Kingdom. The Parliament formally approved the proposal with the Air Navigation Services Act in April 2006. However, the privatization process was stopped by the president's decision in October 2006 because it conflicted with a constitutional clause, which says air traffic management within Germany must be carried out by a state organization.
- Throughout Germany DFS is represented at 16 international airports and at nine regional airports by its subsidiary The Tower Company.

COUNTRIES/REGIONS SERVED

Bremen, Langen, München

PERFORMANCE

Employees	5,342
ATCOs	1,780

FACILITIES

Towers	16
ACC	1
ACCs/APPs	2
ACC/UAC/APP	1
UAC	1

AIRPORTS

Total	549
Paved Runways	330
> 10,000ft	13
8,000ft – 10,000ft	53
5,000ft to 7,999ft	59
< 4,999ft	205
International	18
Heliports	25

EQUIPMENT – ATM

- iCAS System: P1/VAFORIT ATS
- Satellite Systems Monitoring: GNSS-U

EQUIPMENT – COMMUNICATION

- Voice Switching: Frequentis ISIS-XM

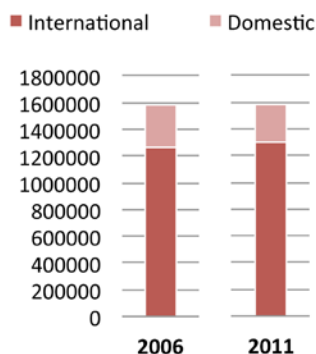
EQUIPMENT – NAVIGATION

- Satellite: GPS
- Augmentation: EGNOS
- NPA: Air Traffic Control & Business Systems (AC-B)

EQUIPMENT – SURVEILLANCE

- Multilateration & ADS-B: ERA (Munich, Hamburg, Berlin-Brandenburg)
- Surface: AviBit A-SMGCS, HITT's A3000 A-SMGCS, GlobeGround
- MSSR: Raytheon Mode S (Berlin-Brandenburg)

Germany Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five German Airlines by 2011 Scheduled Seats

Lufthansa German Airlines	56,110,742
Air Berlin	22,232,462
germanwings	6,975,538
Condor Flugdienst	3,333,891
TUIfly	2,559,816

Top Five Foreign Airlines by 2011 Scheduled Seats

Ryanair	5,492,718
easyJet	3,221,654
Air France	2,412,157
British Airways	1,668,119
SWISS	1,560,246

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Ghana

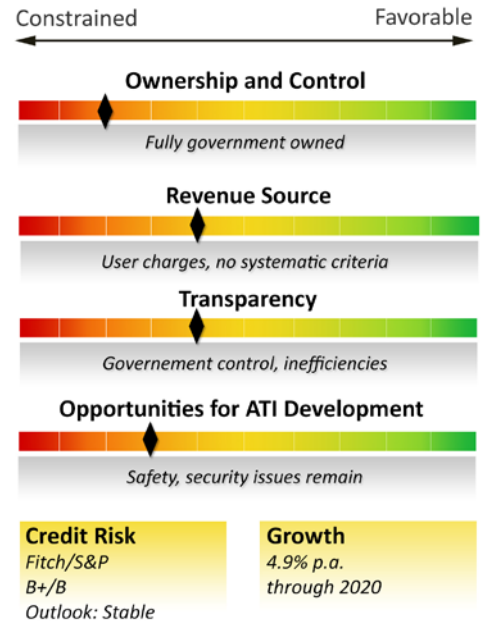
Ghana Civil Aviation Authority (GCAA)

■ NEXA ASSESSMENT

Air traffic in Ghana has increased significantly over the past several years due to strong economic growth and the discovery of oil, which has inevitably led to heavy congestion and ATC stress. West Africa lacks clear air transportation leadership when compared to the roles Addis Ababa, Johannesburg, and Nairobi play in East Africa. Despite the fact that Ghana lacks a flagship national airline, Accra serves as one of the major gateways into Africa and has potential to fill the void; however, like many African countries Ghana continues to face significant safety and security issues in air transport. Ghana failed its most recent FAA/IASA Audit, and none of its carriers has passed the IATA/IOSA audit. As a result, the GCAA is motivated to attain FAA Category I status and is searching for enhanced communication and navigation capabilities. Recent installations of DVOR/DME, ADS-C/CPDLC, and AWOS are a strong step forward.

The government has aimed to expand its aviation infrastructure, including Kotoka International Airport, although air infrastructure was noticeably absent from Ghana's 2012 budget report priorities. Despite Ghana's relatively attractive investment climate and strong economy, Ghana has not attracted as much private finance for infrastructure as have its African peers.

The US Trade and Development Agency awarded grant money to the GCAA to enhance terminal services and design the Kotoka International Airport air traffic control center. The technical assistance program will also develop documents necessary for procuring the goods and services required to implement the construction project.

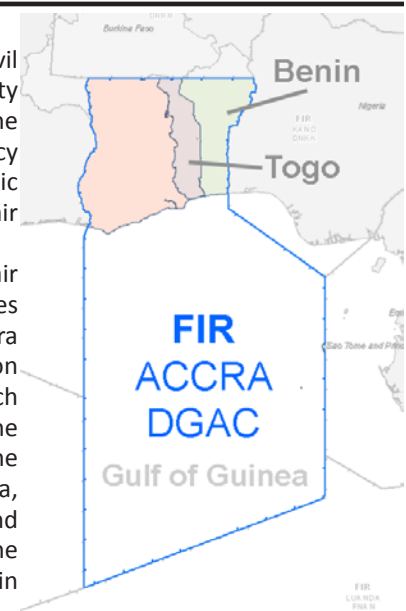


BACKGROUND

- Formed from the merger of the British colony of the Gold Coast and the Togoland trust territory, Ghana in 1957 became the first sub-Saharan country in colonial Africa to gain its independence. Ghana endured a long series of coups before Lt. Jerry Rawlings took power in 1981 and banned political parties. After approving a new constitution and restoring multiparty politics in 1992, Rawlings won presidential elections in 1992 and 1996.
- Government type: constitutional democracy. With an executive— president popularly elected for a maximum of two 4-year terms; Council of State, a presidential appointed consultative body of 25 members required by the constitution, legislative— unicameral Parliament popularly elected for 4-year terms. And a judicial branch— independent Supreme Court justices nominated by president with approval of Parliament.
- Ghana has a population of 24 million (2011 est.) and a GDP of US\$18.06 billion (2010).
- Natural resources: Gold, oil, timber, diamonds, bauxite, manganese, fish.
- Agriculture: Products—cocoa, wood manufactures, pineapples, cashews, spices, other food crops, rubber. Land— 70 percent arable and forested.
- Business and industry: mining, lumber, light manufacturing, fishing, aluminum, and tourism.

BRIEF HISTORY

- The Ghana Civil Aviation Authority (GCAA) is the regulatory agency of the Republic of Ghana for air transportation.
- It also provides air navigation services within the Accra Flight Information Region (FIR), which comprises the airspace over the Republics of Ghana, Togo, and Benin and a large area over the Atlantic Ocean in the Gulf of Guinea.
- The GCAA was established in 1930 as a unit with the Public Works Department (PWD); in 1953 GCAA was granted departmental status. It became an Authority under PNDC Law 151 from 16th May, 1986. In the year 2004 the GCAA Act was enacted to replace PNDC Law 151.
- The Civil Aviation Act, Act 678 of November 2004 provides for the establishment of a Civil Aviation Authority, which



will focus on the core functions of airspace management and safety regulations while allowing for a different organization to handle airport development and operations.

- Pursuant to the above, the GCAA was restructured into two bodies: the new Ghana Civil Aviation Authority (GCAA) and the Ghana Airports Company Limited (GACL) on 1st January, 2007.
- Under the GCAA Act 678, the functions of GCAA include the following:
 - ◊ Licensing and certification of air transport operators.
 - ◊ Licensing and certification of aerodromes and construction, operation, maintenance and management of navigation sites.
 - ◊ Provision of air navigation services (airspace management) within the Accra flight information region (FIR).
 - ◊ Regulation of air transport services.
 - ◊ Promoting the development of civil air transport industry in Ghana.
 - ◊ Advising government on all matters concerning civil aviation, among other functions.
 - ◊ Provision of oversight for all activities related to civil aviation.

AIRPORTS

Total	11
Paved Runways	7
> 10,000ft	1
8,000ft – 10,000ft	1
5,000ft to 7,999ft	3
< 4,999ft	2

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Ghanaian Airlines by 2011 Scheduled Seats

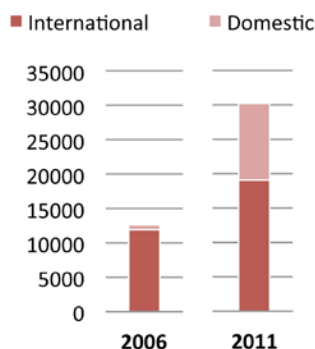
Starbow Airlines	484,420
Antrak Air	176,689
Ghana Intl Airlines	35,321

Top Five Foreign Airlines by 2011 Scheduled Seats

Starbow Airlines	484,420
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Emirates Airlines	194,670
Air Nigeria	161,950
KLM-Royal Dutch Airlines	114,467
Delta Air Lines	107,811

Ghana Scheduled Airline O&D Movements



Source: OAG Schedules Database

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 Title: Director, Air Traffic Services
- Name: Mr. Prince Boateng
 Title: Director, Safety Engineering
- Name: Mr. Gordon Nourbare
 Title: Acting Director, Internal Audit
- Name: Mr. Ebenezer Sagoe
 Title: Director, Human Resources
- Name: Mrs. Joyce Thompson
 Title: Director, Legal Services and International Relations
- Name: Mr. David Twum-Antwi
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- Name: Mr. Paul Kontoh
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India

Airports Authority of India (AAI)

■ NEXA ASSESSMENT

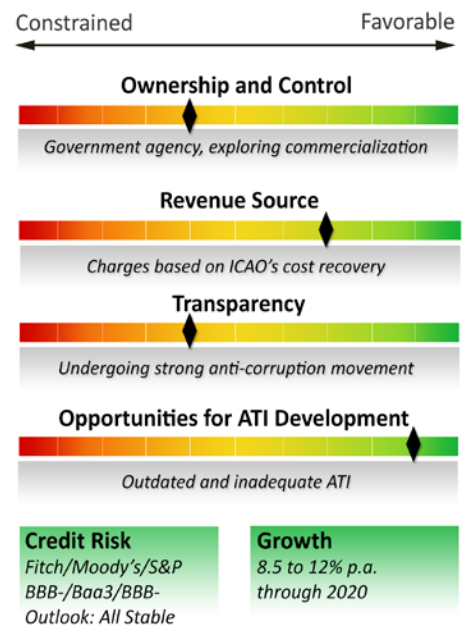
India's air transportation market has grown substantially in the last seven years, and will continue to grow at an expeditious rate, putting strains on obsolete infrastructure while manifesting new ATI markets. Year-over-year growth through April of 2012 for domestic passenger traffic reached 7.15 percent, below estimated annual growth rates of 12 percent, transporting over 20 million passengers. As the seventh largest country in terms of area and the second largest in terms of population, estimated at 1.2 billion people, India has significant potential demand for air transportation, both domestically and internationally. In comparison, China's domestic traffic market is five times larger than India's, with a population only ten percent larger. India currently ranks in the top ten largest aviation markets in the world, but is aiming to achieve a top five status by 2018 as outlined in the "12th Five-Year Plan."

India's ANSP, Airports Authority of India (AAI), is a non-commercialized government agency entrusted with creating, maintaining, managing and upgrading all civil aviation infrastructure. AAI has empirically recognized commercialization as a key factor in attaining the necessary capabilities to carry out strategic operational and financial decisions from a business perspective, creating cost-oriented user charges which are essential for raising capital to fund CNS/ATM infrastructure. Additionally, AAI recognizes the dynamic process of matching infrastructure for supporting ANSs with current airborne technology on carriers, furthering the argument for commercialization to reduce inefficiencies.

Similar to China, India has realized the benefits of infusing private sector expertise and capital into airports, with the first PPP airport built in 1994. Estimates by India's Ministry of Civil Aviation place infrastructure costs for airports and CNS upgrades for the next five to six years near US\$13 billion, with 75 percent likely to be from the private sector. The ratio of private sector capital is significant because of the 125 airports under AAI management, only 12 are profitable at current levels of operation.

Indian carriers are amassing significant losses despite high growth in traffic, mostly due to significantly higher operating costs relative to other mature aviation markets, essentially eliminating global competitiveness prospects. For the three-year period between 2007 and 2010, airlines accumulated US\$4.7 billion in losses, with approximately 88 percent coming from the top three airlines. During 2011, Indian carriers transported 54 million domestic and 38 million international passengers, with demand for low cost carriers exceeding 70 percent of domestic traffic, rearranging airline business models.

GAGAN, India's SBAS equivalent to the US's WAAS, is nearing operational certification for commercial aviation. GAGAN is a significant addition to India's CNS/ATM infrastructure, creating much needed airspace capacity through PBN and increased safety in congested airspace.



BACKGROUND

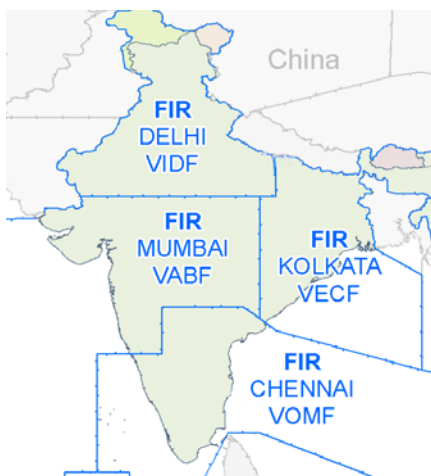
- The Indus Valley civilization, one of the world's oldest, flourished during the third and second millennia B.C. and extended into northwestern India. Aryan tribes from the northwest infiltrated onto the Indian subcontinent about 1500 B.C.; their merger with the earlier Dravidian inhabitants created the classical Indian culture.
- Upon obtaining independence from Britain in 1947, communal violence led to the subcontinent's bloody partition, which resulted in the creation of two separate states, India and Pakistan. The two countries have fought three wars since independence, the last of which in 1971 resulted in East Pakistan becoming the separate nation of Bangladesh. India's nuclear weapons tests in 1998 caused Pakistan to conduct its own tests that same year.
- In January 2011, India assumed a nonpermanent seat in the UN Security Council for the 2011-12 term. Despite pressing problems such as significant overpopulation, environmental degradation, extensive poverty, and widespread corruption, rapid economic development is

fueling India's rise on the world stage.

- India's government is a federal republic consisting of an executive branch— president (chief of state), prime minister (head of government), Council of Ministers (cabinet), legislative branch— bicameral parliament (Rajya Sabha or Council of States, and Lok Sabha or House of the People) and a judicial branch— Supreme Court

BRIEF HISTORY

- Airports Authority of India (AAI) was constituted by an Act of Parliament and came into being on 1st April 1995 by merging erstwhile National Airports Authority and International Airports Authority of India. The merger brought into existence a single organization entrusted with the responsibility of creating, upgrading, maintaining and managing civil aviation infrastructure both on the ground and airspace in the country.
- AAI manages a total of 125 airports, which include 11 international airports, eight customs airports, 81 domestic airports, and 25 civil enclaves at defense airfields. AAI also provides air traffic management



services for all Indian airspace and adjoining oceanic areas to ensure safety of aircraft operations. All major air-routes over the Indian landmass are radar covered (29 radar installations at 11 locations) along with VOR/DVOR coverage (89 installations) co-located with distance measuring equipment (90 installations). Fifty-two runways are provided with ILS installations.

- AAI's successful implementation of an automatic dependence surveillance system (ADS), using indigenous technology, at Calcutta and Chennai Air Traffic Control Centres, gave India the distinction of being the first country to use this advanced technology in the South Asian region, thus enabling effective air traffic control over oceanic areas using satellite mode of communication. Performance Based Navigation (PBN) procedures have already been implemented at Mumbai, Delhi, Chennai and Ahmedabad Airports and are likely to be implemented at other airports in a phased manner.
- AAI has undertaken the GAGAN project in technological collaboration with the Indian Space and Research Organization (ISRO), where the satellite-based system will be used for navigation. The system is likely to become fully operational by 2013. AAI has also planned to provide a ground-based augmentation system (GBAS) at Delhi and Mumbai Airports. The advanced surface movement guidance and control system (ASMGCS) has also been installed at major airports. The central air

traffic flow management system is one of the key implementation programs in progress.

PERFORMANCE

Employees	18,213
ATCOs	1,906

FACILITIES

Towers:	74
ACCs:	11

AIRPORTS

Total	352
Paved Runways	249
> 10,000ft	21
8,000ft – 10,000ft	57
5,000ft to 7,999ft	75
< 4,999ft	96
Heliports	40

EQUIPMENT – NAVIGATION

- DVOR/ DME
- ILS

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Indian Airlines by 2011 Scheduled Seats

Jet Airways India Ltd	19,128,891
Air India	16,987,661
IndiGo Air	16,347,060
Kingfisher Airlines	13,893,113
SpiceJet	13,462,596

Top Five Foreign Airlines by 2011 Scheduled Seats

Emirates Airlines	2,566,401
Qatar Airways	983,500
Air Arabia	878,526
Thai Airways Intl	840,592
Lufthansa German Airlines	789,636

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COUNTRY EMBASSY IN THE US

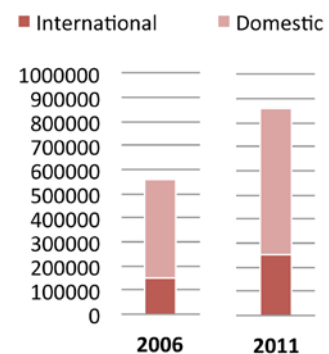
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India Scheduled Airline O&D Movements



Source: OAG Schedules Database

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 Name: A.K. Bhardwaj
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 Name: Lalit Gupta
 Title: Deputy Director General, Air Safety

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Indonesia

Directorate of Civil Aviation (DGCA), Angkasa Pura I (API), Angkasa Pura II (APII)

■ NEXA ASSESSMENT

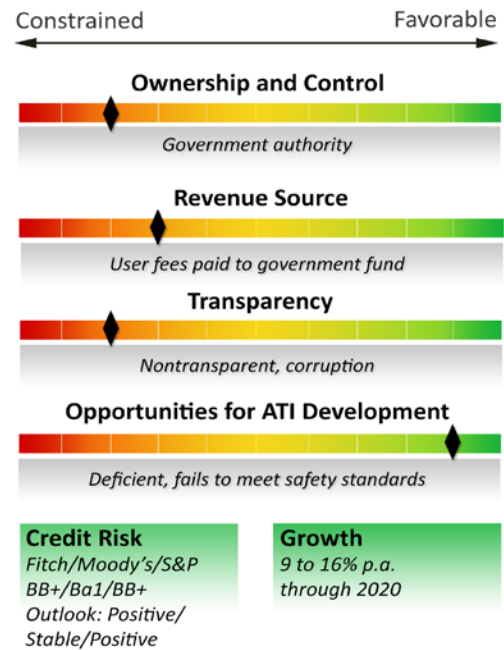
The Indonesian government has continued to state its intentions for improving the climate for private sector investment needed to support a multi-sector US\$468.5 billion economic development plan approved in 2011 to increase infrastructure and investment spending. Despite a clearly stated government strategy, Indonesia faces specific factors that have reduced the competitiveness of the investment climate, including: corruption, nontransparent and arbitrary tax administration, inflexible labor markets, uncompetitive investment laws, and increasing infrastructure bottlenecks. Indonesia's 17,500 islands, the world's fourth largest population, a high growth GDP, and a positive regional outlook are significant factors validating the need for a sufficient ATI system. However, Indonesian civil aviation faces major hurdles that must be addressed before the industry can holistically move forward.

Deficiencies with respect to safety standards have significantly hampered Indonesia's commercial air transportation industry. Indonesian air carriers face direct limitations in international markets, with the country as a whole categorized as noncompliant with ICAO safety standards under the FAA's IASA program. Similarly, Indonesian air carriers, with the exception of a select few, are blacklisted in the EU for failing to meet European safety standards. The DGCA, a government department operating under the Ministry of Transportation, is responsible for the formulation and enforcement of policies covering air transportation, airports, flight security, air navigation, aircraft airworthiness, and operation.

Many of the problematic safety concerns of Indonesia stem from a lack of capabilities due to inadequate personnel. Major air carriers, Lion Air and Garuda, have major ambitions to expand operations and more than double fleet sizes in the next few years, with heavy orders for new aircraft in place.

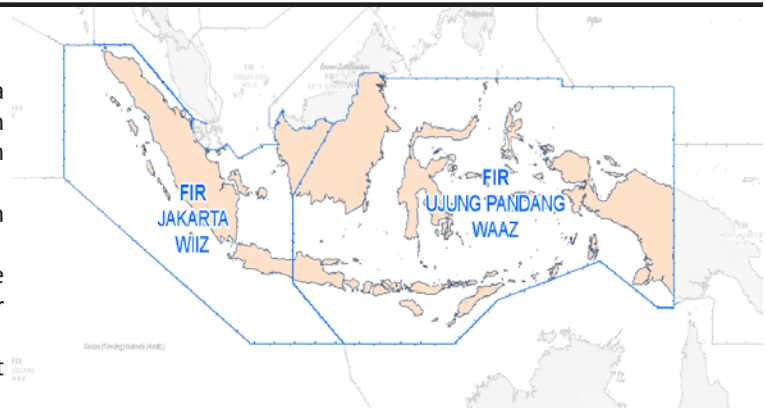
Finding qualified pilots to support the fleet growth will be a major challenge. Flying schools are being established by the country's top air carriers, but oversight and regulation falls under the deficient DGCA. Pilot retention is equally difficult, with qualified pilots flitting to the Middle East to earn higher wages with lower taxes and unqualified pilots being arrested for drug charges. A portion of the safety regulation deficiency of the DGCA can be attributed to more-experienced personnel taking more lucrative positions in the private sector. The DGCA is still recovering from a loss of experienced regulatory staff during a period in 2003 and 2004, when several startup airlines courted the department's top personnel. Further illustrating the lack of organization within the DGCA, the country's main airport, Jakarta Soekarno-Hatta International, built to handle 22 million passengers annually, handled 51 million in 2011.

Indonesia accounts for over 20 percent of ATR's backlog, and NEXA executives view it as the world's most promising market for commercial aviation, which grew 16 percent in 2011. With 27 ADS-B ground stations spread among the archipelago and formal agreements with Airservices Australia for an exchange of enhanced flight data across FIR boundaries between the two countries, Indonesia's commercial aviation sector shows some sign of promise behind a wave of government omission.



BACKGROUND

- An archipelago nation in Southeastern Asia between the Indian Ocean and the Pacific Ocean totaling 1,904,569 sq. kilometers with a population of 246 million.
- It has a civil law system based on a Roman-Dutch model and influenced by customary law.
- President— Susilo Bambang Yudhoyono since October 20, 2004, holding his second four-year term.
- The third largest democracy and fourth most populous country in the world.



- The Foreign Investment Law declares parts of the aviation sector to be closed to foreign investment.
- Foreign direct investment has averaged 0.5 percent of GDP in recent years.

BRIEF HISTORY

- ATC is handled by the state airports enterprise, PT Angkasa Pura
- Split into two separate and autonomous units: PT Angkasa Pura I, in the east, and PT Angkasa Pura II in the west.
- Under new legislation enforced in January 2012, the Indonesian Directorate General of Civil Aviation (DGCA) will assume responsibility for ATC and navigation systems.
- This concerns the ATCOs who wish to remain out of the control of government bureaucracy where better pay and working conditions are offered.

COUNTRIES/REGIONS SERVED

Indonesian airspace is divided into two FIRs – Jakarta, controlling the east side, and Ujung Pandang covering the west.

FACILITIES

ACC	2
Approach Control Centers sectors within Jakarta ACC	5
Flight Service Sectors	14

AIRPORTS

Total	684
Paved Runways	171
> 10,000ft	4
8,000ft – 10,000ft	19
5,000ft to 7,999ft	50
< 4,999ft	98
Heliports	64

- 13 airports managed by PT Angkasa Pura I
- 12 airports managed by PT Angkasa Pura II
- 23 airports managed by State-owned enterprises
- 164 airports managed by the UPT (a technical implementation unit under the DGCA)

EQUIPMENT – COMMUNICATION

- 30 VHF ER ground stations
- 75 VHF VOR beacons

EQUIPMENT – NAVIGATION

- 2 Doppler VOR installations planned for 2012-2014
- 20 new or replacement DVOR-DME planned for 2012-2014
- 11 VORs
- 26 DMEs
- 1 new DME planned for 2012-2014
- 37 new or replacement NDBs planned for 2012-2014
- 6 new ILS sites planned for 2012-2014
- 15 RNAV routes

EQUIPMENT – SURVEILLANCE

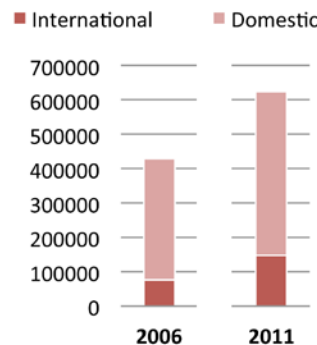
- 11PSR
- 12 SSR
- 4 MSSR
- 7 MSSR Mode-S
- 30 ADS-B ground stations

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Indonesian Airlines by 2011 Scheduled Seats

Lion Air	33,125,212
Garuda Indonesia	18,410,782
Sriwijaya Air	7,834,219
Batavia Air	6,077,460
Indonesia AirAsia	3,863,924

Indonesia Scheduled Airline O&D Movements



Source: OAG Schedules Database

Top Five Foreign Airlines by 2011 Scheduled Seats

AirAsia	1,243,620
Singapore Airlines	1,130,776
Malaysia Airlines	713,776
Cathay Pacific Airways	612,728
China Airlines	480,586

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Ireland

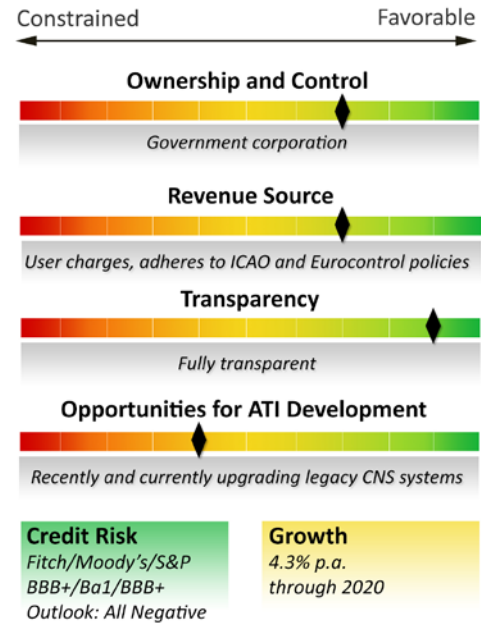
Irish Aviation Authority (IAA)

■ NEXA ASSESSMENT

Ireland is the middleman between the two largest ATI markets, Europe and North America. Positioned in the path of the most direct routes connecting London and New York, Ireland will retain an influential presence in the North Atlantic. In addition to strategic geographic location, Ireland's strong alliance with the US contributes to the promise of the Irish ATI market. US investment in Ireland, revised to US\$190 billion at the start of 2011 and representing almost five percent of worldwide US investments, exceeds total US investments in Brazil, Russia, India, China and South Africa combined. Exports to Ireland in 2011 totaled over US\$7 billion, with aircraft equipment as a leading sector.

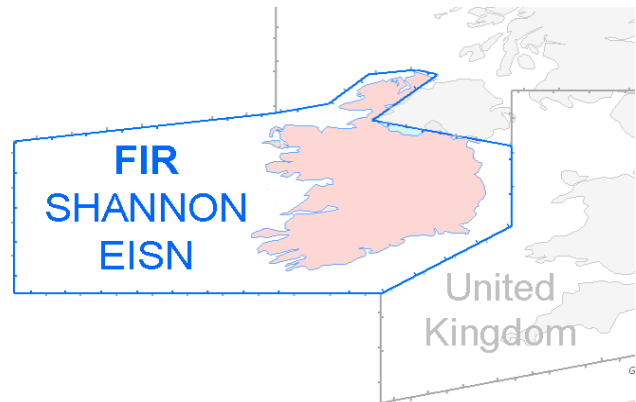
The Irish Aviation Authority, responsible for the provision of ATM and related services and the safety regulation of civil aviation, services over 90 percent of all aircraft travelling from Europe to North America. IAA, which has been profitable since its establishment in 1994, currently has the fifth lowest en route unit rate among the 36 charging ANSPs in Eurocontrol. COOPANS, a joint venture between four ANSPs, IAA, LFV, Navair and Austro Control, and ATM supplier Thales, is a common managerial approach that allows multiple ANSPs to act as a single organization, paving the way for reduced costs and increased benefits. With the first COOPANS system going live in May 2011, IAA became host to the most advanced flight data processing system in Europe.

Ireland is home to the largest, and currently the cheapest, LCC in Europe, Ryanair. With average ticket prices at US\$52.90, Ryanair is the cheapest form of air transportation in Europe, serving over 1,500 routes between 168 airports in 28 countries. Ryanair operates a fleet of over 290 Boeing 737-800 aircraft with firm orders for 13 more; Ryanair's pullback in growth from double digits during the last year will not deter the airline's expansion plans.



BACKGROUND

- The government formally declared Ireland a republic in 1948; however, it does not normally use the term "Republic of Ireland," which tacitly acknowledges the partition of northern Ireland, but refers to the country simply as "Ireland."
- In 1949, Ireland withdrew from the British Commonwealth and joined the European Community in 1973. Ireland and Northern Ireland have sought peaceful unification and have cooperated with Britain against terrorist groups. A peace settlement for Northern Ireland is gradually being implemented despite some difficulties.
- Ireland has a population of 4,581,269 (June 2011) and its government is a parliamentary republic.
- The government consists of three branches: executive—president, head of state; prime minister Taoiseach, head of government. Legislative—bicameral national parliament Oireachtas, House of Representatives Dail and Senate Seanad. Judicial—Supreme Court, Court of Criminal Appeal, High Court, Circuit Court, and District Court.
- Until 2008, Ireland boasted one of the most vibrant, open economies in the world. The "Celtic Tiger" period of the mid- to late 1990s saw several years of double-digit GDP growth, driven by a progressive industrial policy that boosted large-scale foreign direct investment and exports. GDP growth dipped during the immediate



post-September 11, 2001 global economic slowdown, but averaged roughly five percent yearly between 2004 and 2007, the best performance for this period among the original EU 15 member states. During that period, the Irish economy generated roughly 90,000 new jobs annually and attracted over 200,000 foreign workers, mostly from the new EU member states, in an unprecedented immigration influx. The construction sector accounted for approximately one-quarter of these jobs. However, the Irish economy began to experience a slowdown in 2008. The Irish property market collapsed, putting pressure on the Irish banks, which had a significant portion of their loan books in real estate. This, in turn, caused a collapse in the government's finances because of a large dip in the amount of revenue raised from value-added tax and tax

- on property transactions.
- Factors that negatively affect Ireland's ability to attract investment include: high labor and energy costs (especially when compared to low-cost countries in Eastern Europe and Asia), skilled labor shortages, inadequate infrastructure (such as in the transportation and Internet/broadband sectors), and price levels that are ranked among the highest in Europe.
- Ireland achieved moderate growth in 2011 and cut the budget deficit to 10.1 percent of GDP, although the recovery is expected to slow in 2012 as a result of the euro-zone debt crisis.

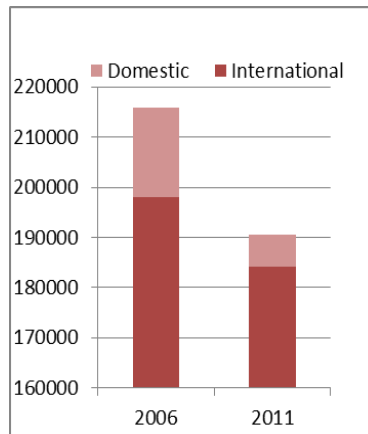
BRIEF HISTORY

- The Irish Aviation Authority (IAA) was established as a commercial state-sponsored body on 1 January 1994 under the Irish Aviation Authority Act of 1993. It is responsible for the provision of air traffic management services in Irish-controlled airspace and the safety regulation of the Irish civil aviation industry.
- The IAA safety regulatory services include:
 - ◊ Aircraft airworthiness certification and registration.
 - ◊ The licensing of personnel and organizations involved in aircraft maintenance.
 - ◊ The licensing of pilots, air traffic controllers and aerodromes.
 - ◊ The approval and surveillance of air carrier operating standards.
- The IAA also provides training and consultancy services to a wide range of international clients. Using its purpose-built training center, the IAA delivers the highest standard technical training to its own staff and international customers. The consultancy department draws on the vast experience available within the IAA to provide a wide range of consultancy services worldwide.
- The IAA ensures that Irish civil aviation operates to safety standards set internationally,

principally by the International Civil Aviation Organisation (ICAO), European Joint Aviation Authorities (JAA), Eurocontrol, the European Civil Aviation Conference (ECAC), The European Aviation Safety Agency (EASA) and the European Union.

- Following an intensive international audit by ICAO in 2010, Ireland was ranked among the best in the world in the safety oversight of civil aviation. Ireland was placed in the top ten countries worldwide ahead of countries like the United States, Brazil and Australia and ranked third of the twenty-two European states that had completed their audit at that time.

Ireland Scheduled Airline O&D Movements



Source: OAG Schedules Database

PERFORMANCE

Employees	702
ATCOs	255

FACILITIES

Towers	3
ACC	2

AIRPORTS

Total	39
Paved Runways	16
> 10,000ft	1
8,000ft – 10,000ft	1
5,000ft to 7,999ft	4
< 4,999ft	10

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Irish Airlines by 2011 Scheduled Seats

Aer Lingus	6,580,978
Ryanair	6,099,786

Aer Arann 455,879

Top Five Foreign Airlines by 2011 Scheduled Seats

Air France	334,552
BMI British Midland	208,048
Delta Air Lines	200,986
Lufthansa German Airlines	183,048
Continental Airlines	174,475

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Italy

ENAV S.p.A. (Ente Nazionale di Assistenza al Volo)

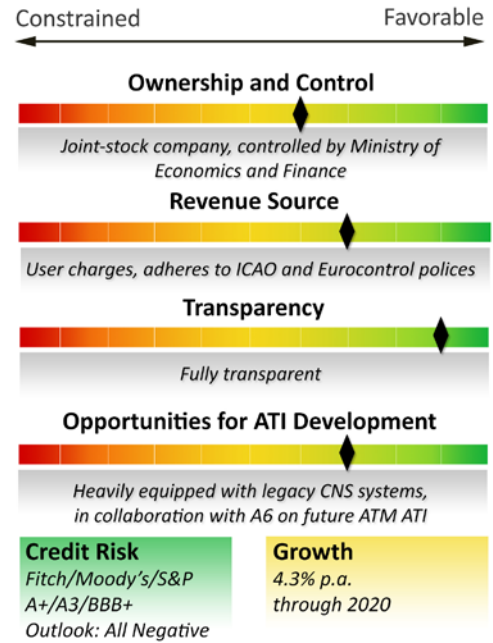
■ NEXA ASSESSMENT

As the eighth largest economy in the world directly engulfed in the European debt crisis, Italy's ATI market and economy are unpredictable due to the foreseeable turmoil of international influences. Challenges in Italy include strong competition from local and EU companies and a regulatory environment that lacks the clarity and efficiency typically found in developed economies. Top opportunities in Italy include travel and tourism, telecommunications equipment and services, and airport and ground equipment.

With annual traffic growth rates in the EU expected to be below the world average of 4.7 percent through 2030, and the drop in passenger traffic in recent years due to the global recession, Italy's ATI and NAS are not facing an inflection point as critical as other countries and regions. ENAV, a joint-stock company controlled by the Ministry of Economics and Finance and under the vigilance of the Ministry of Transport, provides ANSs in Italy's airspace as well as a myriad of other services that provide additional revenue streams reducing the reliance on ANSs revenues, which are exceptionally seasonal due to tourism in the country. In June of 2011, ENAV's Forlì Academy Training Centre began training ATCOs from Ukraine in preparation for the 2014 World Cup.

Despite pervasive financial concerns across Europe, Italian airports have remained profitable. Italy was a frontrunner in privatization of airports during the 1990s, with Aeroporti di Roma being the fourth privatized major international hub in Europe. Fiumicino 2, a major expansion plan that is part of Rome's strategic growth plan aimed at implementation of an efficient infrastructure network, if approved, will run through 2044 and includes the creation of new and the expansion of current airside and landside infrastructure.

ENAV has been rolling out a number of changes to its route network, hoping to reduce congestion during peak tourist season, working towards an ultimate goal of a free route system, which allows for the shortest possible track without any reference to conventional routes. Despite reported fuel savings and better on-time performance by airlines resulting from this flight efficiency plan, passengers have not yet seen any benefits. Airlines have yet to reduce published flight times to reflect reduced en route duration from the reshaped routes, citing ground and approach delays as offsetting sources.

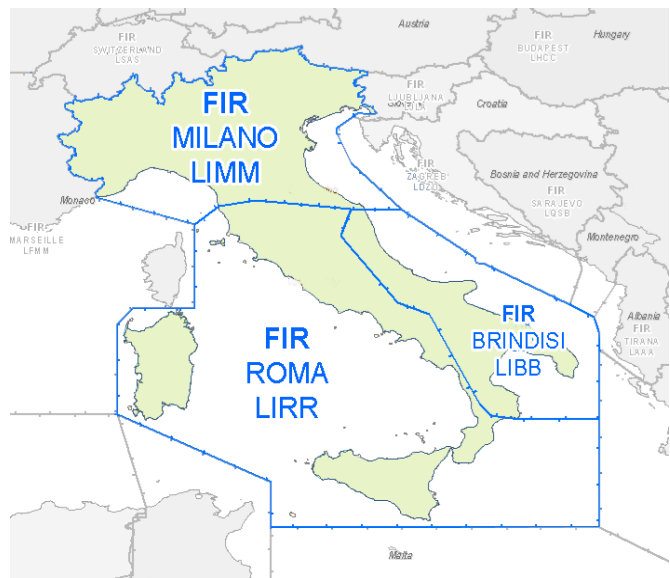


BACKGROUND

- A peninsula on the Southern Region of Europe with a total area of 301,340 sq kilometers and a population of over 61 million people.
- Initially a kingdom unified under King Victor Emmanuel II in 1861.
- Benito Mussolini established a fascist dictatorship in the 1920s, ending the parliamentary government.
- Became a republic in 1946, following Italy's defeat during WWII.
- Civil law system; judicial review under certain conditions in Constitutional Court.

BRIEF HISTORY

- ENAV manages and controls civilian air traffic in Italy.
- It is entirely controlled by the Ministry of Economy and Finance and supervised by Ministry of Infrastructure and Transport.
- ENAV was created by the transformation of the National



Agency for Flight Assistance into a joint-stock company in 2000.

- In 2006, ENAV acquired 100 percent of Vitrociset Sistemi S.r.l. (now known as Techno Sky S.r.l.), internalizing the management and maintenance of flight assistance systems and their related software.
- Operates its own ATC Academy.
- Is a member of the international ATM (Air Traffic Management) system & participates in research and development activities in coordination with the international control bodies for the sector such as ICAO, EUROCONTROL and for trade (CANSO).

COUNTRIES/REGIONS SERVED

Serves Italian airspace (734,000 sq kilometers) with aeronautical information service, training and licensing of ATCO's, R&D consultancy services, aerodrome weather services, ATM and CNS, and flight inspection.

PERFORMANCE

Employees	3,251
ATCOs	1,525

FACILITIES

Towers	39
ACC	4
Approach Control Center	22
Aerodrome Flight Info Service Centers	11

AIRPORTS

Total	132
Paved Runways	101
> 10,000ft	9
8,000ft – 10,000ft	30
5,000ft to 7,999ft	18
< 4,999ft	44
Heliports	6

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

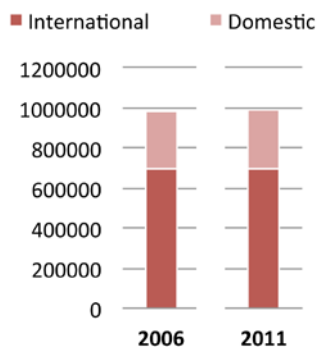
Top Five Italian Airlines by 2011 Scheduled Seats

Alitalia-Compagnia Aerea	23,512,276
Meridiana	5,970,053
Air One	4,002,617
Wind Jet	3,337,005
Blue Panorama Airlines	2,077,338

Top Five Foreign Airlines by 2011 Scheduled Seats

Ryanair	18,138,141
easyJet	8,062,545
Lufthansa German Airlines	4,920,226
Air France	2,438,367
British Airways	1,755,245

Italy Scheduled Airline O&D Movements



Source: OAG Schedules Database

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 Title: Head of Operations Department
 Name: Mrs. Livia Bellomia
 Title: Head of Airport Management Area
 Name: Mrs. Giovanna Laschena
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Jamaica

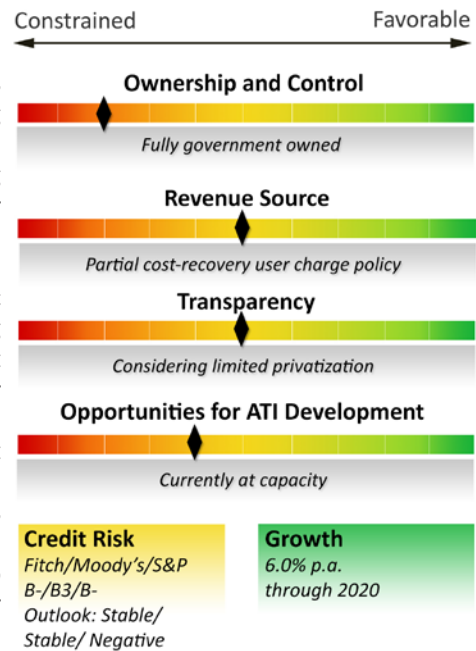
Jamaica Civil Aviation Authority (JCAA)

■ NEXA ASSESSMENT

Jamaica is a world brand tourist and music destination ideally located along strategic north-south shipping lanes and air routes with a major port facility and other potential port facilities on the south coast.

The Jamaica Civil Aviation Authority (JCAA) is a statutory organization under the Ministry of Transport and Works which regulates the Jamaican aviation industry. AEROTEL, a subsidiary of the JCAA and a government-owned entity, oversees engineering and telecommunication services to the aviation sector. Its functions include designing, installing, maintaining, and operating aeronautical telecommunication facilities and systems for the JCAA, Meteorological Office, AAJ, airlines and users of Jamaica’s airspace, and the Kingston FIR. The country’s air transport system will have to resolve the fate of Air Jamaica as part of its long term planning. The national carrier has been unprofitable for many years and has passed through phases of private and public ownership without achieving financial viability. The government is pursuing options for privatization of Air Jamaica based on rationalization of its operations.

Infrastructure issues include insufficient air cargo facilities, limited domestic aerodrome infrastructure, peak hour congestion and the fact that the existing international airports do not have the capacity to extend runways to support long-stage lengths. MJB Airports Limited, operators of the busy Sangster International Airport, seeks to upgrade and repave the runway in 2012, although has yet to arrange the US\$20 million in requisite financing which the government is unwilling to provide. Kingston-based Norman Manley International Airport, which is up for divestment by the government, is also planning to extend its runway by up to 25 percent. The International Finance Corporation (IFC), the private-sector arm of the World Bank Group, has been appointed lead adviser to the Jamaican government on the privatization project, which also includes other aerodromes in Jamaica.



Jamaica aims to follow Singapore, Dubai, and Hong Kong as a transportation logistics hub, although the country’s “Vision 2030” master plan acknowledges stresses and limitations on Jamaica’s ATC system and encourages development of private sector involvement in aviation infrastructure, including provision of incentives. The country faces considerable challenges, though, as the consequences of the global economic recession for Jamaica are likely to include: reduced flows of direct investment; greater difficulty in sourcing financing from global capital markets; reduction in demand for Jamaica’s exports; and a downturn in tourism earnings. The impact will limit the prospects for growth in Jamaica’s economy, including transport services.

BACKGROUND

- The island – discovered by Christopher Columbus in 1494 – was settled by the Spanish early in the 16th century. The native Taino Indians, who had inhabited Jamaica for centuries, were gradually exterminated and replaced by African slaves. England seized the island in 1655 and established a plantation economy based on sugar, cocoa, and coffee. Jamaica gained full independence when it withdrew from the federation in 1962. Violent crime, drug trafficking, and poverty pose significant challenges to the government today. Nonetheless, many rural and resort areas remain relatively safe and contribute substantially to the economy.
- Historically, Jamaican emigration has been heavy. Since the United Kingdom restricted emigration in 1967, the major flow has been to the United States and Canada. About 20,000 Jamaicans emigrate to the United States each year; another 200,000 visit annually. As of 2011,



- Jamaica had a population of 2,868,380.
- Jamaica’s economy is improving following the effects of the global financial meltdown. However, the country still faces serious long-term macro-economic problems, including a sizable merchandise trade deficit, large-scale unemployment and underemployment, and a

debt-to-GDP ratio of over 130 percent. The high debt burden has led to underinvestment in public infrastructure, education, and crime reduction strategies. This, combined with high-cost energy, continues to erode confidence in the productive sector. Jamaica's onerous debt burden – the fourth-highest per capita – is the result of government bailouts of ailing sectors of the economy, most notably the financial sector in the mid-to-late 1990s.

- Jamaica took two significant steps toward improving its economy in January and February 2010. The first was the Jamaica Debt Exchange (JDX), which helped reduce the debt servicing costs for Jamaica by about US\$450 million per year and provided the country with some fiscal relief. Second, the government of Jamaica signed a US \$1.27 billion, 27-month Standby Arrangement with the International Monetary Fund (IMF) to support the country's economic reforms and help it cope with the consequences of the global economic downturn. The IMF completed three reviews of the Standby Agreement, and Jamaica is seeking negotiations with the IMF for a new agreement. The government has limited fiscal space for infrastructure and social programs, since debt servicing still accounts for a substantial amount of government expenditures.
- The government divested itself of Air Jamaica via a sale to Caribbean Airlines. It also sold off its former sugar estates to a Chinese interest, and is in the process of divesting its share of a major bauxite operation.

BRIEF HISTORY

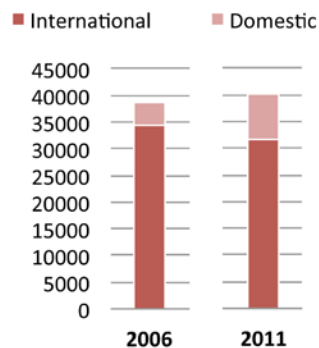
- The Civil Aviation Authority is a statutory organization within the Ministry of Transport and Works and regulates the Jamaican aviation industry.
- Formerly the Civil Aviation Department, (CAD) the Authority was established by the Civil Aviation (Amendment) Act 1995 and became operational on May 1996.

- The Authority regulates Air Navigation and all matters relating to safety and security in civil aviation. Jamaica as a member of the International Civil Aviation Organization (ICAO) is required to comply with the standards of the Chicago Convention on International Civil Aviation.
- Headed by a director general and guided by a nine-member board the authority's main functions include:
 - ◊ Ensuring the safe and orderly conduct of all aviation activities in Jamaica and those conducted overseas by Jamaican operators.
 - ◊ Providing efficient and user-responsive air navigation services to the national and international aviation community
 - ◊ Cooperating with other agencies in the facilitation, provision and regulation of a reliable and safe air transport system.
 - ◊ Providing a conducive environment for the development of its staff.

AIRPORTS

Total	27
Paved Runways	12
> 10,000ft	0
8,000ft – 10,000ft	2
5,000ft to 7,999ft	0
< 4,999ft	10

Jamaica Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Jamaican Airlines by 2011 Scheduled

Seats

Air Jamaica	362,935
International AirLink	45,760
Jamaica Air Shuttle	26,054

Top Five Foreign Airlines by 2011 Scheduled Seats

American Airlines	427,768
Caribbean Airlines	427,322
US Airways	227,242
Delta Air Lines	208,800
jetBlue Airways	181,250

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Japan

Japanese Civil Aviation Bureau (JCAB)

■ NEXA ASSESSMENT

Despite having the fifth largest economy in the world in terms of GDP, Japan faces a long road to economic recovery after debilitating natural disasters in 2011 destroyed homes, factories, and infrastructure with damages totaling between US\$235 and US\$310 billion. In addition to disaster recovery, Japan faces an aging population and a declining birthrate, resulting in an overall population decrease. While the surrounding Asia-Pacific region is experiencing rapid economic growth, Japan is reorganizing to capitalize on strengths in order to support the country's international economic and social activities supported by ATI. This long-term reorganization strategy, Collaborative Actions for Renovation of Air Traffic Systems, or CARATS, outlines the various problems of the current air traffic system and identifies the interests of the key stakeholders influencing the future direction of Japan's NAS.

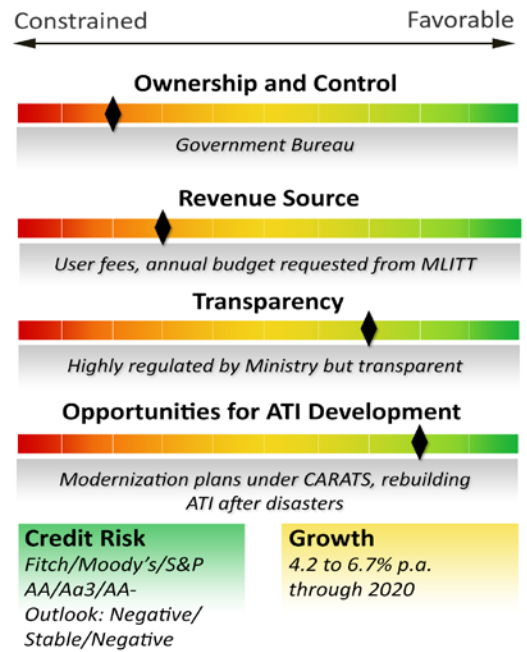
Japan's Civil Aviation Bureau, under the Ministry of Land, Infrastructure, Transport and Tourism, is responsible for ANSs, communications, security, meteorology, search and rescue, and general technical aspects of ANS. JCAB, which requests a budget year-by-year, could face severe funding challenges, annually impacting the CARATs development plan, as government funding is filtered towards restoring areas impacted by the natural disasters. For this same reason, equipage for airlines is unlikely to be subsidized by Japan, further increasing the necessity for airlines to emphasize cost-benefit analysis of future programs and further reducing the likelihood of equipage mandates in Japan. Instead, near term programs are aligned to take advantage of existing technologies already present on aircraft, such as FMSs, meaning current cockpit equipage levels are sufficient to significantly impact congestion and capacity levels by realigning policies and procedures to match onboard capabilities.

CARATs, Japan's equivalent to NextGen and SESAR, identifies seven key modernizations and supporting technologies that will aid the transition of Japan's airspace, one of the most congested in the world, by easing airspace bottlenecks and creating additional service capacity into the country. While other leading ANSPs are leaning towards ADS-B as the technology of the future, Japan isn't offering the same level of support. With a total land area slightly smaller than California and an excellent radar network already in place, an investment in ADS-B is not justifiable at this point. Multilateration, which is also being used for ground surveillance programs, has already been deployed in Japan and is being considered as the long-term solution for en-route surveillance because of the appealing benefits and low costs, both for JCAB and air carriers.

The Greater Tokyo Metropolitan Area, home to Japan's two busiest airports handling approximately 100 million combined passengers a year, already struggles with capacity limitations and would greatly benefit from expedited efforts to move from traditional airspace-based operations toward the implementation of trajectory-based operations. Interoperability of capabilities with neighboring ANSPs, with various operation environments, is important for ensuring seamless operation without any loss of benefits.

BACKGROUND

- An island chain with a population of 126.5 million whose economic growth averaged 4.5 percent from 2001 through 2010.
- A parliamentary government with a constitutional monarchy
- Three branches of government with a bicameral legislature: House of Councillors and House of Representatives. Executive branch comprises of the emperor, prime minister and cabinet. Legislative branch is called the Diet. The Supreme Court justices are appointed by the cabinet, the chief justice is appointed by the monarch after designation by the cabinet.
- Diet designates the prime minister; constitution requires



that the prime minister commands parliamentary majority; following legislative elections, the leader of majority party or leader of majority coalition in House of Representatives usually becomes prime minister; the monarchy is hereditary; cabinet is appointed by the prime minister.

BRIEF HISTORY

- The predecessor of JCAB, the Aviation Safety Agency, was established after WWII in 1949 under the Ministry

of Telecommunications.

- The Agency was decommissioned in 1950 and the Civil Aviation Agency was established under the Ministry of Transport.
- The Agency was “upgraded” to the Civil Aviation Bureau under the MOT in 1952.
- The MOT was combined with the Ministry of Construction and became the Ministry of Land, Infrastructure and Transport in 2001.
- To highlight tourism, functions the English name was changed in 2008 to the Ministry of Land, Infrastructure, Transport and Tourism.
- The Civil Aviation Bureau operates under the Ministry of Land, Infrastructure, Transport and Tourism.

COUNTRIES/REGIONS SERVED

JCAB serves the Fukuoka FIR (nm), providing terminal, en route and oceanic IFR/VFR air traffic control, meteorological and aeronautical information and publications services for commercial, general aviation and military customers.

FACILITIES

ACC 4

AIRPORTS

Total	176
Paved Runways	144
> 10,000ft	7
8,000ft – 10,000ft	44
5,000ft to 7,999ft	38
< 4,999ft	27
International	18
Heliports	15

EQUIPMENT – ATM

- ARSR – air route surveillance radar
- ASDE – airport surface detection equipment
- ASR – airport surveillance radar
- RDP – radar data processing system (1973)
- IECS – integrated en-route control system (2008)
- ARTS – automated terminal radar system (1976)
- TRAD – terminal radar alphanumeric display system(1991)
- FDMS – flight plan data management system (2007)
- FIMS – flight information

management section (2007)

- ODP – oceanic data processing center (1988)
- ASM – airspace management (2005)
- ATFM –air traffic flow management (1994)

EQUIPMENT – COMMUNICATION

- 46 remote center air-ground communication facilities

EQUIPMENT – NAVIGATION

- 1 VOR
- 23 VORTAC
- 94 VOR/DME
- 58 ILS facilities
- 46 NDB facilities

EQUIPMENT – SURVEILLANCE

- 16 air route surveillance radars
- 4 currently operating SSR Mode S
- 1 work order for SSR Mode S
- 4 oceanic route service radars
- 1 currently operating SSR Mode S

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Japanese Airlines by 2011 Scheduled Seats

All Nippon Airways	75,005,785
Japan Airlines	41,077,732
Skymark Airlines	9,251,280
Japan Transocean Air	4,216,950
Hokkaido Intl Airlines	3,709,860

Top Five Foreign Airlines by 2011 Scheduled Seats

Delta Air Lines	3,245,327
Korean Air	3,174,663
Asiana Airlines	2,235,452
Cathay Pacific Airways	1,744,882
China Airlines	1,408,100

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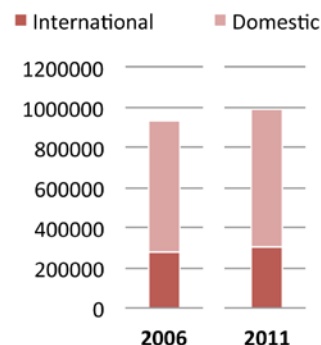
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Japan Scheduled Airline O&D Movements



Source: OAG Schedules Database

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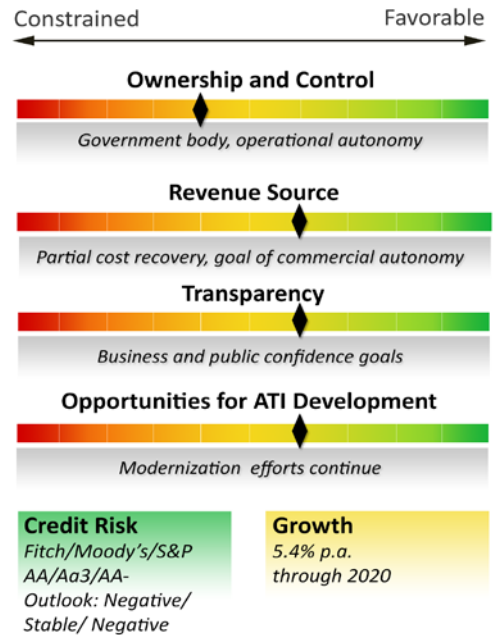
Jordan

Civil Aviation Regulatory Commission (CARC)

■ NEXA ASSESSMENT

Jordan serves as a transit hub and will arguably remain one of the major transit points for both goods and passengers destined for Iraq, while the number of tourists visiting Jordan is set to continue to increase. Jordan has three main airports handling over two million passengers and 70,000 tons of freight per year. The Queen Alia International Airport (QAIA) near Amman is the largest of the three, handling 90 percent of Jordan's air traffic, and is in need of upgrade and modernization. Planned investment in the QAIA terminal has reached US\$750 million, and is seen as being a key point of development of the QAIA as a regional hub. The commercial arm of the World Bank, IFC, has provided funding for the expansion project. The Aqaba International Airport is also in need of capacity expansion as a regional airport serving the Aqaba-Eilat area.

In 2008 the government formulated a new national transport strategy with the aim of improving, modernizing, and further privatizing the sector. Jordan has demonstrated migration away from the typical Middle Eastern system of state-owned enterprise control of infrastructure and is moving towards privatization. The national flag carrier, Royal Jordanian Airlines (RJ), was the top priority in the list of enterprises to be restructured and privatized due to its poor performance and external debt. After considerable delay, RJ's IPO was finalized in 2007, and other units within the former Civil Aviation Authority still remain to be corporatized. In addition to its airports, Jordan is also actively modernizing its air traffic control infrastructure. After upgrading its current radar surveillance and air traffic control systems in 2011, the Jordan Civil Aviation Regulatory Commission recently awarded Intelcan a contract for the supply, installation, and operation of an ADS-B system throughout Jordanian airspace.



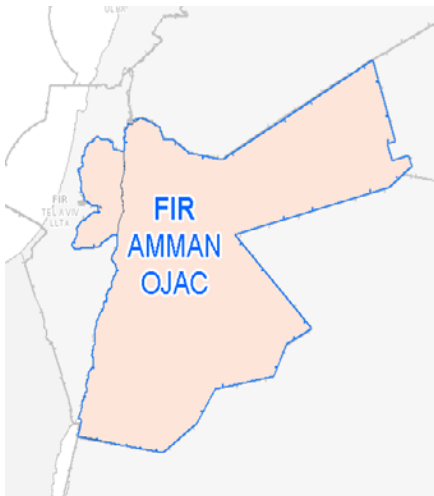
BACKGROUND

- Middle Eastern country with a population of approximately 6.51 million people.
- UK mandated to govern areas of the Middle East.
 - ◊ Was a semi-autonomous region called Transjordan. extracted from Palestine in the early 1920s.
 - ◊ Gained its independence in 1946.
 - ◊ Adopted the name of Jordan in 1950.
- Initially controlled the West Bank, but lost it to the Israelis in 1967. Permanently relinquished Jordanian claims to the West Bank in 1988.
- King Hussein reinstated parliamentary elections in 1989, initiated a gradual political liberalization and political parties were legalized in 1992.
- In 1994, Jordan signed a peace treaty with Israel. It acceded to the World Trade Organization in 2000.
- Due to the unrest in Tunisia and Egypt, Jordanians staged weekly demonstrations protesting government corruption, rising prices, rampant poverty, and high unemployment.
 - ◊ Pushing for limits on the king's authority and effective ways to fight against government corruption.
 - ◊ Royal decree approved constitutional amendments passed by the Parliament aimed at strengthening a more independent judiciary and establishing a constitutional court and independent election

commission to oversee the next municipal and parliamentary elections.

BRIEF HISTORY

- CARC was established on August 2007 to replace the Civil Aviation Authority (CAA) in accordance with article 68 of the civil aviation law number 41 of year 2007. It has financial and administrative independence. It is the authorized body responsible for:
 - ◊ safety and security
 - ◊ economic regulations
 - ◊ legal affairs; and
 - ◊ the provision of ANS.
- ANS is undergoing a major transition to become fully financially and operationally autonomous; to encourage a business approach to service delivery; to enhance ATM performance, to meet airspace users' requirements and to instill public confidence. In 2010 Jordan and the EU signed a comprehensive air services agreement which will open up and integrate their respective markets, strengthen cooperation and offer new opportunities for customers and operators. To meet the declared aims of the Middle East air navigation plan, ANS took required action to improve regional coordination with neighboring states, and enhancing flexible use of airspace and civil/military coordination. For the purpose of serving traffic and



enhancing communications, DVOR installed at QAIA an ATC VHF system. A new radar system will be installed, which will harmonize future requirements, enable radar data sharing, and add ADS-B, MLAT, OLDE, CPDLC capabilities. AIS has been granted ISO 9001 certification and has completed phase one of migration project with EADS, which will provide a safe, secure, and fast transition toward AIM. Jordan and the UAE started the operational use of AMHS internationally, and formed with Saudi Arabia and Egypt the first operational triangle worldwide.

COUNTRIES/REGIONS SERVED

N/A

PERFORMANCE

Employees 400
ATCOs 80

FACILITIES

Towers 3
ACC 1

AIRPORTS

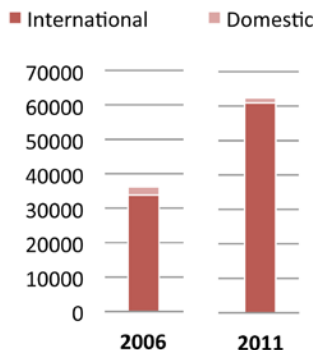
Total 18
Paved Runways 16
> 10,000ft 8
8,000ft – 10,000ft 5
5,000ft to 7,999ft 1
< 4,999ft 2
Heliports 1

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Jordanian Airlines by 2011 Scheduled Seats
Royal Jordanian 2,560,402

Royal Falcon 112,912
PETRA AIRLINE 37,400

Jordan Scheduled Airline O&D Movements



Source: OAG Schedules Database

Top Five Foreign Airlines by 2011 Scheduled Seats

Emirates Airlines 191,958
Turkish Airlines 126,886
flydubai 121,527
Egyptair 120,087
Middle East Airlines 100,456

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Kazakhstan

Kazaeronavigatsia

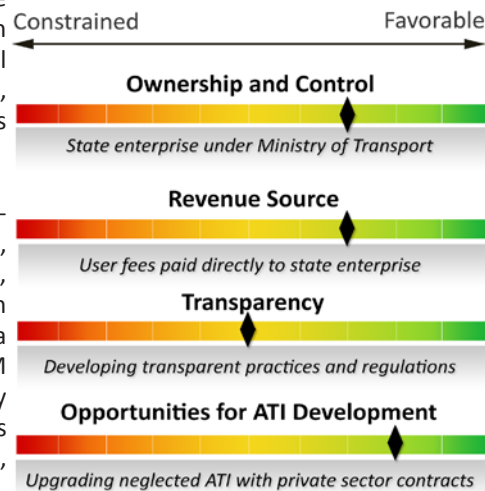
■ NEXA ASSESSMENT

Kazakhstan, bordering two major emerging economies, China and Russia, became the first country in the former Soviet Union to receive an investment-grade credit rating. Kazakhstan's economy, having fully recovered from the 2008 financial crisis, relies heavily on the export of the country's vast energy and agricultural resources. Because of geographic location and restricted access to oceans, Kazakhstan depends on neighboring countries to export resources to extended international markets. The Caspian sea port, rail and pipelines have all received upgrades to facilitate transfer of resources, while roadways and ATI have been neglected. Accession to the WTO has remained a top priority for Kazakhstan. With attainment of full membership a firm possibility by the end of 2012, Kazakhstan's ATI and ANSS, which fall short of ICAO's safety standards, will require significant investments and upgrades to handle increased foreign interest in the nation's economy.

As the ninth largest country in the world in terms of total area, Kazakhstan is ill-suited for limited range radar surveillance. The priority for Kazaeronavigatsia, a republic state enterprise under the Ministry of Transport in charge of ANSS, is development a of CNS/ATM system that enables space-based navigation and surveillance. Along with six other regional ANSPs constituting the Eurasia Coordination Council (ECC), Kazaeronavigatsia is seeking to coordinate ATFM and ATC operations in order to improve interaction and interoperability between ATM units of adjacent states. Coordination among the members addresses international airway structure development, training of personnel, policy and technical aspects of ATM, such as RVSM implementation.

Development of Kazakhstan's ATM system is currently under contract through 2025 with Lockheed Martin. The US\$49.9 million contract will provide Kazaeronavigatsia with its first country-wide ATM system. The Kazakhstan system will be one of the most advanced in the region, creating additional negotiation power for Kazakhstan in the ECC while extending Lockheed Martin's presence in central Asia.

Kazakhstan's national carrier, Air Astana, the only exception to the EU blacklist on Kazakhstani air carriers, is expanding its MRO capabilities, hoping to become central Asia's largest MRO provider. By the end of 2012, Air Astana hopes to have the engineering capabilities to perform complex maintenance services (C checks) on its fleet of 24 aircraft that includes Boeing, Airbus, Embraer, and Fokker aircraft. Air Astana, which is a joint venture between Kazakhstan's state-owned investment arm Samruk Kazyna and BAE Systems, plans on an IPO after 10 years of operation. The IPO is contingent upon government buyout of BAE Systems' 49 percent ownership in the carrier.



Credit Risk
 Fitch/Moody's/S&P
 BBB/Baa2/BBB+
 Outlook: Positive/
 Stable/Positive

Growth
 6.7% p.a.
 through 2020

BACKGROUND

- Kazakhstan became an independent nation in 1991 with the dissolution of the Soviet Union.
- It is a landlocked country in Central Asia bordering Russia, China, Kyrgyzstan, Turkmenistan and Uzbekistan with a population of 15.5 million.
- Kazakhstan is a republic with the capital located in Astana. The republic is authoritarian presidential rule, with little power outside of the executive branch.
- The legal system is a civil law system with influences from Roman-Germanic law and by the theory and practice of the Russian Federation.
- Extractive industries, particularly hydrocarbons and mining, have been the engines for economic growth. However, geographic limitations and decaying infrastructure present serious obstacles.
- From 2000 through 2007, Kazakhstan's economy grew more than nine percent per year.

- It has embarked on an ambitious diversification program, aimed at developing targeted sectors like transport, pharmaceuticals, telecommunications, petrochemicals and food processing.

BRIEF HISTORY

- The Republican State Enterprise (RSE) "Kazaeronavigatsia" of the Ministry of Transport and Communications of Kazakhstan was established in 1995.
- The company provides air navigation services in the airspace of the Republic of Kazakhstan in accordance with the laws and regulations of the republic, regulatory standards and guidelines that define the requirements for safety and efficiency of aviation operations, their regularity, and also provides fulfillment of its obligations to the state enforcement of the provisions of Convention on International Civil Aviation.
- Kazakhstan's highest aviation priority is to upgrade its



communications, navigations, and surveillance systems for air traffic management (CNS/ATM) to enable the use of space-based satellite navigation. Kazaeronavigatsia RSE is implementing up-to-date air traffic control facilities. It has built an ATC structure consisting of four AS ATC units that include ACC and TMA air traffic control and substitute eighteen flight information regions (FIR). Kazaeronavigatsia has been one of the few air navigation services providers (ANSPs) that have made an innovative decision on full integration of working stations in the regional airports' remote towers into the AS ATC system centers, including a single hardware and software environment for data processing. The new national AS ATC system is based on communications and data-link network. The communications network was developed to overcome challenges of large distances between navigation units, sparse population, and technical backwardness of many remote communities in the Republic. Kazaeronavigatsia has built a digital data transmission network between all navigation units of Kazakhstan, including ground and satellite segments of datalinks with automatic selection of correct path.

COUNTRIES/REGIONS SERVED

Akhtubinsk, Aktau, Almaty, Astrana, Kyzylorda and Shymkent

PERFORMANCE

Employees 2,165

ATCO 766

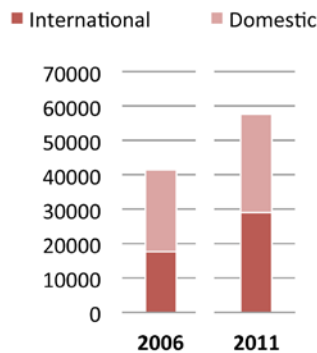
FACILITIES

Towers 118
ACC 4

AIRPORTS

Total 97
Paved Runways 65
> 10,000ft 10
8,000ft – 10,000ft 26
5,000ft to 7,999ft 16
< 4,999ft 13
Heliports 3

Kazakhstan Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Kazakhstani Airlines by 2011 Scheduled Seats

Air Astana	3,305,144
Air Company Scat	722,936
Irtys-Air	75,735
Asia Wings	57,500
D.E.T.A. Air JSC	28,832

Top Five Foreign Airlines by 2011 Scheduled Seats

Transaero Airlines	236,772
Aerosvit Airlines	115,254
Turkish Airlines	93,692
Lufthansa German Airlines	86,519
KLM-Royal Dutch Airlines	58,734

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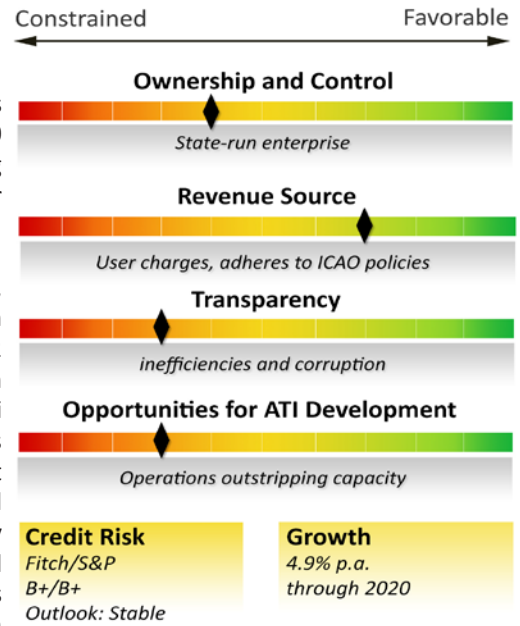
Kenya

Kenya Civil Aviation Authority (KCAA)

■ NEXA ASSESSMENT

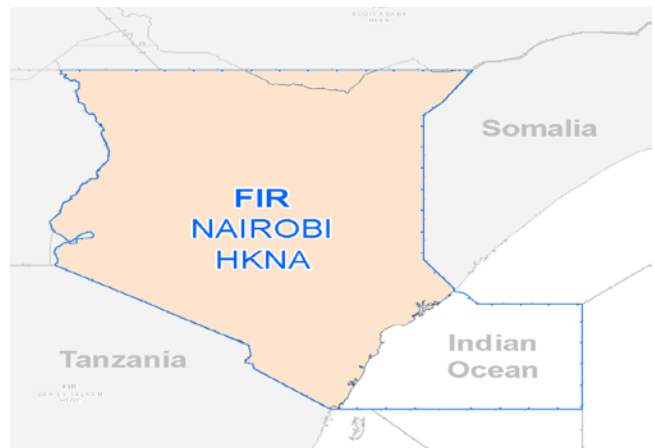
Kenya is a regional leader in air transportation. Aircraft movements (landings and takeoffs) in Kenya have increased from an average 195,000 in 2008 to 335,000 in 2010/2011, a 72 percent increase, thus necessitating modernization to increase capacity and meet global standards. The number of aircraft in the country has also increased from 757 in 2008 to 1056.

The Kenya Civil Aviation Authority is implementing a five-year strategic plan, a master plan for Kenya’s airspace, and has unveiled a new air navigation system to improve air traffic control as its airports get busier. The US\$42 million investment involves radars, digital air navigation and communication equipment, installed at Jomo Kenyatta International Airport, Moi International, and other airports in the country. Kenyatta Airport also needs to address capacity constraints and security issues. While runway capacity at Kenyatta is adequate, there are shortages of terminal capacity and so-called airside infrastructure, such as taxiways and aprons that allow the runway to be utilized to its fullest potential. The airport is currently operating well beyond its design capacity in numbers of passengers: while the airport’s terminal capacity equals 2.5 million seats, actual passenger traffic is much higher, reaching an estimated 6.3 million seats in 2007. Investments already underway will add a new terminal to the airport and upgrade the airside infrastructure, increasing the capacity of the airport to more than nine million passengers per year.



BACKGROUND

- Cushitic-speaking people from what became Sudan, South Sudan, and Ethiopia moved into the area that is now Kenya beginning around 2000 BC. Arab traders began frequenting the Kenyan coast around the first century AD. Kenya’s proximity to the Arabian Peninsula invited colonization, and Arab and Persian settlements sprouted along the coast by the eighth century. Swahili developed as a trade language for the region. Kenya has a population of 43 million.
- Kenya is a republic. On August 2010, the new constitution abolished the position of prime minister and established a bicameral legislature.
- Mixed legal system of English common law, Islamic law, and customary law; judicial review in High Court.
- Although the regional hub for trade and finance in East Africa, Kenya has been hampered by corruption and by reliance upon several primary goods whose prices have remained low. Low infrastructure investment threatens Kenya’s long-term position as the largest East African economy. The IMF halted lending in 2001 when the government failed to institute several anticorruption measures. In the key December 2002 elections, Daniel Arap Moi’s 24-year-old reign ended, and a new opposition government took on the formidable economic problems facing the nation. After some early progress in rooting out corruption and encouraging donor support, the Kibaki government was rocked by high-level graft scandals in 2005 and 2006. In 2006, the World Bank and IMF delayed loans pending action by the government on corruption. The international financial institutions and



donors have since resumed lending, despite little action on the government’s part to deal with corruption.

BRIEF HISTORY

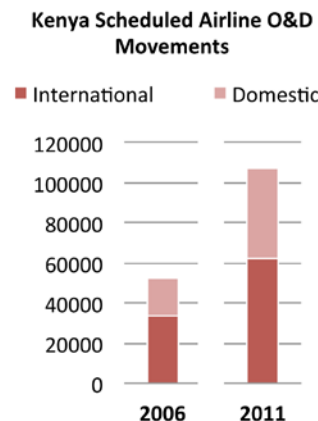
- Kenya Civil Aviation Authority (KCAA) was established on October 2002 by the Civil Aviation (Amendment) Act, with the following primary functions:
 - Regulation and oversight of aviation safety & security
 - Economic regulation of air services and development of civil aviation
 - Provision of air navigation services
 - Training of aviation personnel
- Passenger traffic in the country has increased from 5.6 million in 2005 to 7.2 million in 2010 while freight traffic has gone up from 284,863 tonnes to 301,932 tonnes

according to KCAA statistics.

- KCAA operations are guided by the provisions of the convention on international civil aviation, the related ICAO Standards and Recommended Practices (SARPs), and the Kenya Civil Aviation Act.
- For a long time, Kenya has had the privilege of being the gateway of eastern and southern Africa for air travelers, although it faces major competition from neighbouring countries.
- Due to the increasing role of the aviation industry and the changes taking place worldwide, KCAA is looking ahead to ensure that the Kenyan airspace is secure enough to meet the challenges of air transport in the future.
- In this regards, KCAA is implementing a five-year strategic plan, a master plan for Kenya's airspace while at the same time ensuring that aviation safety and security are maintained.
- With increased traffic passing through its airspace, Kenya is continuously upgrading its facilities and systems to cater to increased air traffic and to ensure efficient and orderly flow.

AIRPORTS

Total	191
Paved Runways	17
> 10,000ft	4
8,000ft – 10,000ft	2
5,000ft to 7,999ft	4
< 4,999ft	7



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Kenyan Airlines by 2011 Scheduled Seats

Kenya Airways	2,955,588
Five Forty Aviation	558,546
Jetlink Express	333,400
AirKenya Express	137,825
SafariLink	136,110

Top Five Foreign Airlines by 2011 Scheduled Seats

Precisionair	252,470
Emirates Airlines	185,774
Ethiopian Airlines	160,096
Qatar Airways	105,153
KLM-Royal Dutch Airlines	101,864

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Republic of Korea

Korea Civil Aviation Safety Authority (CASA)

■ NEXA ASSESSMENT

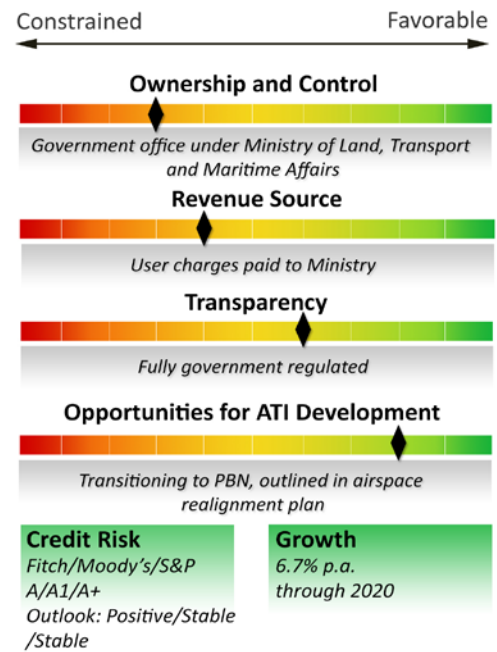
The government of South Korea has ambitious plans to transform the country into a business, transport, and tourism hub serving Northeast Asia. With debt level as an important priority, South Korea has opened market access to Foreign Direct Investment, an important part of President Lee Myung-bak's growth strategy, through policy reforms aimed at strengthening competition and transferring state-owned enterprises to the private sector. Despite the government's positive attitude and measures to enhance FDI in South Korea, insufficient regulatory transparency and volatility in labor-management relations are two uncertainties causing hesitations among potential investors. Through improvements addressing regulatory concerns and a heavy infrastructure focus already in place, South Korea, with the world's highest population density, has the necessary tools for significant growth over the next decade.

Due to ubiquitous tensions on the Korean Peninsula and a booming air transport market, South Korea's Office of Civil Aviation faces unique airspace challenges. A focus on transitioning to PBN procedures, outlined in the master plan addressing airspace realignment, will enhance safety while increasing capacity into the expanding market. Due to heavy involvement in airspace security by South Korea's military forces, commercialization of services is unlikely. However, ongoing conflict has supported a robust aerospace industry in South Korea, developing aircraft and technologies to ensure safety of commercial aviation in the country.

South Korea's key airport, Incheon International Airport, operated by Incheon International Airport Corporation, serves as the major hub and gateway to northeast Asia, supporting the region's economic development. The Korea Airports Corporation, managing and operating fourteen airports, is responsible for maintenance of infrastructure, including ACCs and navigational aids, as well as provision of aviation training courses.

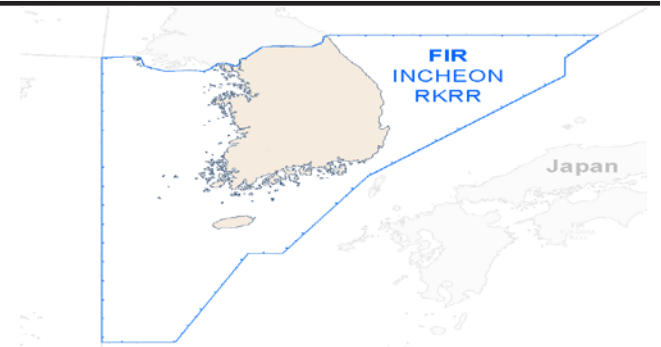
Low cost carriers have developed an inescapable presence in Asia, including a burst of entries in South Korea, all focusing efforts on supplying the demand for short-haul domestic and regional markets. Market share among South Korea's five major LCCs reached record levels in the third quarter of 2011, grabbing 42.3 percent of the market share, up from 9.7 percent three years prior. With intense competition from high-speed rail service beginning in 2004, legacy carriers have shifted attention away from loss-making domestic markets towards an expanding international market. LCCs are also refocusing attention away from domestic markets towards international markets, but LCC service on international routes remains limited.

South Korea's Lotte World Tower, currently under construction in Seoul, in a partnership with Saab Sensis, has developed an innovative conflict detection application for WAM systems to increase airspace surveillance and alerting capabilities. The new system, providing WAM surveillance of flights within ten to fifteen nautical miles of the tower, provides ATCOs and the Republic of Korea Air Force with advanced warning capabilities, enhancing the safety of the surrounding airspace and non-aviation related infrastructures.



BACKGROUND

- The republic of Korea is located in the southern half of the Korean peninsula with total area of 99,720 sq kilometers and a population of 48.7 million people.
- The government is a republic comprised of the president, prime minister and a unicameral National Assembly.
- Mixed legal system combining European civil law, Anglo-American law, and Chinese classical thought.



BRIEF HISTORY

- Ministry of Transportation founded April 1948.
- Participated in ICAO as a contracting state on December 1952.
- Civil Aviation Bureau formed on August 1963 under the Ministry of Construction & Transportation.
- Civil Aviation Bureau restructured in 2002 to Civil Aviation Safety Authority.
- Ministry of Transport & Construction restructured to Ministry of Land, Transport and Maritime (MLTM).

COUNTRIES/REGIONS SERVED

Serves the Incheon FIR

PERFORMANCE

Employees 800
ATCOs 450

AIRPORTS

Total 116
Paved Runways 72
> 10,000ft 4
8,000ft – 10,000ft 21
5,000ft to 7,999ft 13
< 4,999ft 34
Heliports 510

EQUIPMENT – COMMUNICATION

- 183 VHF antennas
- 158 UHF antennas
- 8 HF antennas
- 1 Aviation management system
- 97 AFTN terminals
- 10 Automatic terminal information systems
- 7 Digital automatic terminal informational systems
- 432 Direct speech circuit links
 - ◊ 3 between North Korea
 - ◊ 7 between Japan
 - ◊ 2 between China

EQUIPMENT – NAVIGATION

- 2 Precision approach radar
- 26 Instrument landing systems
- 3 ILS localizers
- 39 DMEs
- 7 Tactical air navigation aids

EQUIPMENT – SURVEILLANCE

- 11 en-route radar
- 16 approach radar
- 4 Air to surface detection

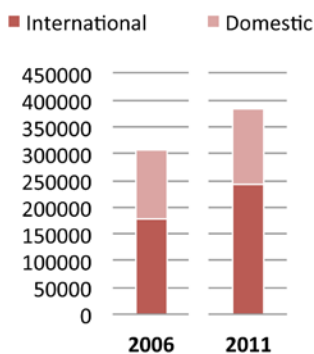
equipment

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Korean Airlines by 2011 Scheduled Seats

Korean Air	22,004,804
Asiana Airlines	13,320,035
Air Busan	2,996,102
Jin Air	2,009,070
Eastar Jet	1,993,028

Republic of Korea Scheduled Airline O&D Movements



Source: OAG Schedules Database

Top Five Foreign Airlines by 2011 Scheduled Seats

China Eastern Airlines	989,523
China Southern Airlines	857,920
Japan Airlines	634,367
Air China	601,207
Cathay Pacific Airways	594,356

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Name: Mr. KIM, Soo-kon
Title: Director General for Aviation Safety Policy
Name: Mr. CHANG, Sung-ho
Title: Director General for Airport and Air Navigation Facility Policies
Name: Mr. KIM, Jae-young
Title: Director for Flight Standards Division
Name: Mr. KIM, Sang-su
Title: Director for Air Traffic Management Division
Name: Mr. LEE, Sang-gon
Title: Director for Personnel Licensing Division

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Lebanon

Lebanese Civil Aviation Authority (LCAA)

■ NEXA ASSESSMENT

The largest airport in Lebanon – Rafic Hariri International Airport – handles almost five million passengers annually and is the main port of entry along with the port of Beirut. The airport is highly regarded as an aviation hub in the Middle East, coming second to Dubai International Airport. The airport is managed and operated by the Directorate General of Civil Aviation (DGCA) which operates within the Ministry of Public Works and Transport. The DGCA is responsible for operating the air traffic control at the airport as well as controlling Lebanon’s airspace. Lebanon’s flag carrier, Middle East Airlines, has undergone restructuring and modernized its aircraft fleet.

Lebanon has suffered historically from long periods of conflict. The Lebanese government estimates the country has rebuilt its infrastructure approaching the pre-war state, and reconstruction efforts should be bolstered by efforts in Jordan and Iraq. The Lebanese economy is open to trade and foreign investment with a free market economy. Interestingly, the country has benefited from the global economic crisis, with foreign direct investment doubling in 2008.



BACKGROUND

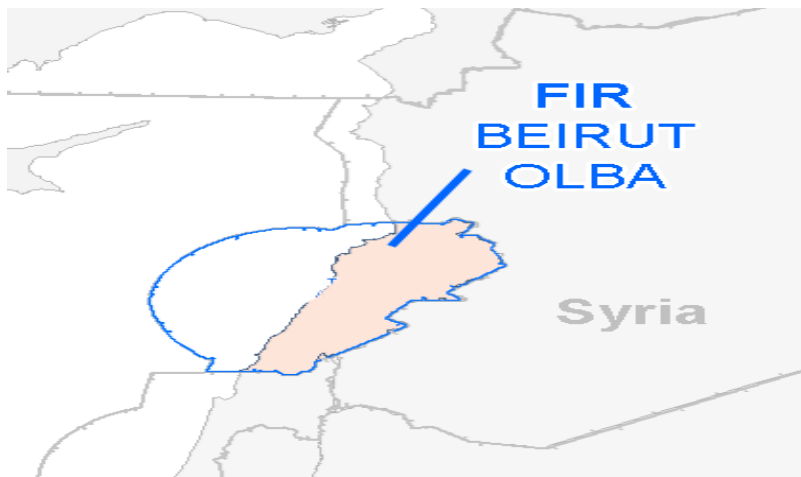
- Lebanon’s history since independence has been marked by periods of political turmoil interspersed with prosperity built on Beirut’s position as a regional center for finance and trade. In 1958, during the last months of President Camille Chamoun’s term, an insurrection broke out, and US forces were briefly dispatched to Lebanon in response to an appeal by the government. During the 1960s, Lebanon enjoyed a period of relative calm with Beirut-focused tourism and banking sector-driven prosperity. Other areas of the country, however, notably the south, north, and Bekaa Valley, remained poor in comparison.
- In the early 1970s, difficulties arose over the presence of Palestinian refugees, many of whom arrived after the 1967 Arab-Israeli war, the secret 1969 Cairo Agreement permitting the establishment of Palestinian camps in Lebanon, and 1970 “Black September” hostilities in Jordan. Among the 1970 arrivals were Yasser Arafat and the Palestinian Liberation Organization (PLO). Coupled with the Palestinian problem, Muslim and Christian differences grew more intense.
- Lebanon has a population of about 3,908,000 (2010 est., IMF) and is a republic consisting of three branches: Executive– president (chief of state), prime minister (head of government), deputy prime minister, cabinet, Legislative– unicameral national assembly and Judicial– four Courts of Cassation, Constitutional Council, Supreme Council.
- Lebanon has a free-market economy and a strong laissez-faire commercial tradition. The Lebanese economy is service-oriented; main growth sectors include banking and tourism. According to the Central

Bank of Lebanon, Lebanon posted 7.5 percent GDP real growth in 2010, with inflation running at 4.5 percent. There are no restrictions on foreign exchange or capital movement, and bank secrecy is strictly enforced. Lebanon has legislation to combat money laundering and terrorism finance, and joined the Kimberley Process in September 2005. There are practically no restrictions on foreign investment; however, the investment climate suffers from red tape, corruption, arbitrary licensing decisions, high taxes, tariffs, and fees, archaic legislation, and a lack of adequate protection of intellectual property. There are no country-specific US trade sanctions against Lebanon.

- In December 2006, the US signed a Trade and Investment Framework Agreement (TIFA) with the government of Lebanon to help promote an attractive investment climate, expand trade relations, and remove obstacles to trade and investment between the two countries.

BRIEF HISTORY

- The LCAA is committed to develop and administer policies, regulations and services in order to promote and maintain the highest level possible of safety and quality in civil aviation activities and related environment.
- The flight safety department includes three operational sections which are:
 - ◊ Airworthiness service
 - ◊ Flight operations service
 - ◊ Personnel licensing section
- Airworthiness service:
 - Conducts continuous inspection and surveillance on



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 daniield@beirutairport.gov.lb
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the organizations and personnel engaged in the repair, overhaul, and maintenance of state-registered or operated aircraft. Insures compliance with national regulations, and requirements of the manuals approved by the manufacturers.

- Flight operations service:
- Issues inspection certifications and maintains continued operator surveillance to ensure that the required standards of operation are maintained. The law and regulations which implement the provisions of the Annexes to the ICAO Convention provide the basis of the safe and efficient operation of the following:
 - ◊ Commercial air operations
 - ◊ Aerial work operations
 - ◊ General aviation operations
- Personnel licensing section:
 - In charge of implementing established decrees and regulations based on standards and recommended practices of Annex 1, and the validation of licenses. Conducts examinations and the issues and renews Lebanese personnel licences for flight crew members, cabin attendants, and ground mechanics.

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

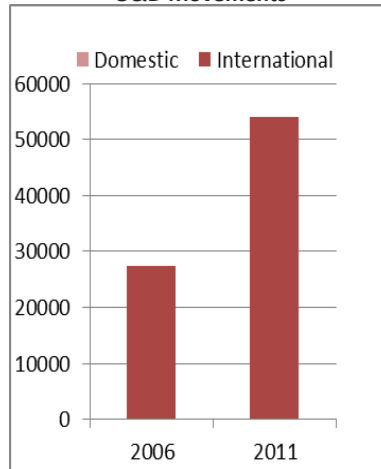
Top Five Lebanese Airlines by 2011 Scheduled Seats

Middle East Airlines	1,594,725
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Top Five Foreign Airlines by 2011 Scheduled Seats

Emirates Airlines	186,838
flydubai	177,471
Qatar Airways	175,099
Air France	164,241
Turkish Airlines	150,453

Lebanon Scheduled Airline O&D Movements



Source: OAG Schedules Database

PRINCIPAL DIRECTORS

Name: Mr. Daniel El Haiby
 Title: Airport Manager
 Name: Mr. Walid El Hassanieh
 Title: Air Navigation Director
 Name: Mr. Amin Jaber
 Title: Maintenance Director

ANSP CONTACT INFO

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 Fax: 961 1 629106

AIRPORTS

Total	7
Paved Runways	5
> 10,000ft	1
8,000ft – 10,000ft	2
5,000ft to 7,999ft	0
< 4,999ft	2

US EMBASSY IN THE COUNTRY

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COUNTRY EMBASSY IN THE US

Ambassador: Antoine Chedid
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Libya

Libyan Civil Aviation Authority (LCAA)

■ NEXA ASSESSMENT

Libya is working to rebuild its air transport sector in the wake of the ousting of former leader Muammar Gaddafi and the devastating aftermath of the ensuing armed conflict, when passenger air travel was put on hold during the civil war. The 2011 Global Competitive Report ranked Libya 133 out of 139 in the quality of air transport infrastructure. In addition, labor unrest and military control of air traffic has hampered reconstruction efforts. Infrastructure has been destroyed in many places and will require extensive construction and investment. International carriers that have resumed flights to Libya since the fall of the regime include Qatar Airways, Lufthansa, Alitalia, Turkish Airlines, Royal Jordanian, and the Hungarian operator, Malev.

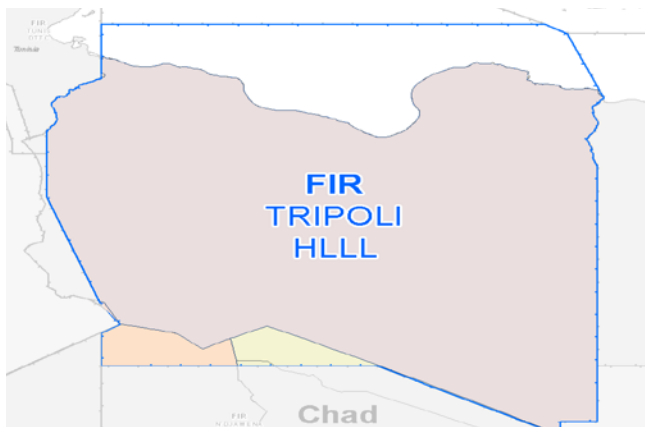
The country benefits from large natural resource reserves, including oil, gold and natural gas reserves, which may lead to quicker growth if other economic indicators begin to stabilize. Libya will need extensive assistance in all facets of its infrastructure, including aviation.



BACKGROUND

- For most of their history, the people of Libya have been subjected to varying degrees of foreign control. The Phoenicians, Carthaginians, Greeks, Romans, Vandals, and Byzantines ruled all or parts of Libya. Although the Greeks and Romans left impressive ruins at Cyrene, Leptis Magna, and Sabratha, little else remains today to testify to the presence of these ancient cultures.
- The Arabs conquered Libya in the seventh century A.D. In the following centuries, most of the indigenous peoples adopted Islam and the Arabic language and culture.
- Nationwide political violence erupted in February 2011, following the Libyan government’s brutal suppression of popular protests against Libyan leader Muammar Gaddafi.
- In February 2011, the Council stated its desire to remove Gaddafi from power and establish a unified, democratic, and free Libya that respects universal human rights principles.
- On October 2011, three days after Gaddafi’s death, the TNC officially declared Libya liberated. The TNC

- subsequently moved from Benghazi to Tripoli and formed a transitional government (i.e., an executive branch).
- US relations with Libya deteriorated sharply following the Gaddafi regime’s brutal suppression of the uprising in 2011. The US suspended embassy operations in Tripoli in February 2011 and ordered the Libyan government to suspend its embassy operations in Washington in March. A mob overran and burned the US Embassy in May. The US imposed sanctions on Libya in February and, in compliance with UNSCR 1970, froze more than \$30 billion in Libyan government assets, most of which have now been released after the UN de-listed most Libyan financial institutions. The US Em-bassy in Tripoli resumed operations in September 2011. The US appointed a special envoy to the Libyan opposition in Benghazi in March 2011 and has maintained a diplomatic presence there since April 2011. The US government officially recognized the TNC as the legitimate government of Libya on July 2011.
- Libya has a population of 6,733,620 (July 2012 est.) and a Transitional National Council (interim, appointed government).



AIRPORTS

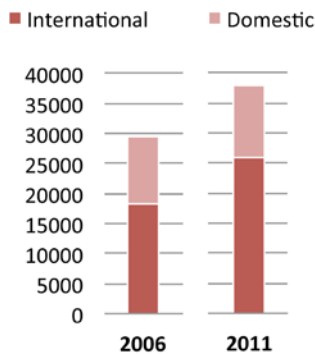
Total	137
Paved Runways	59
> 10,000ft	24
8,000ft – 10,000ft	5
5,000ft to 7,999ft	23
< 4,999ft	7
Heliports	2

TOP 5 AIRLINES BY SEATS/MOVEMENTS

Top Five Libyan Airlines by 2011 Scheduled Seats	
Libyan Airlines	1,170,157

Buraq Air	752,847
Afriqiyah Airways	559,880
Alajnihah Air Transport	16,536

Libya Scheduled Airline O&D Movements



Source: OAG Schedules Database

PRINCIPAL DIRECTORS

Name: Mohsen Y.M. Wafa
 Title: Director of Air Transport

Name: Naje Ramadan Dow
 Title: Flight Safety Director

Name: Abdarahman Ben Yousif
 Title: Director of Air Navigation

Name: Mohamed Ali Abdelsaid
 Title: Director of Administration and Finance

Name: Ibraihim Wali
 Title: Chief of Air Transport Approval Section

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Top Five Foreign Airlines by 2011 Scheduled Seats

Tunis Air	50,523
Karthago Airlines	48,910
Turkish Airlines	47,260
Egyptair	31,940
Royal Jordanian	27,954

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Malaysia

Department of Civil Aviation (DCA) Malaysia

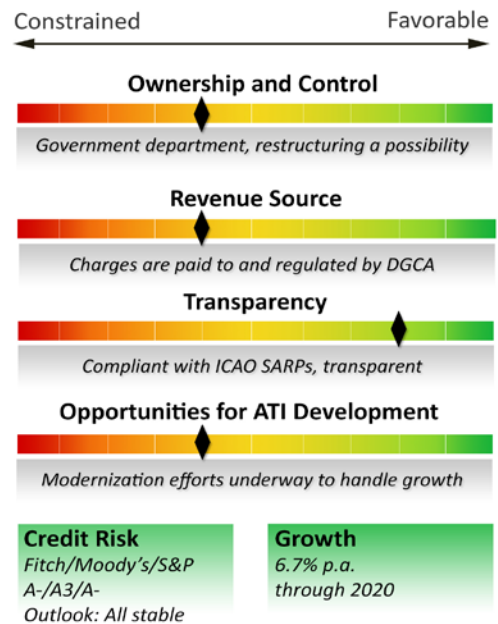
■ NEXA ASSESSMENT

Malaysia is host to a healthy and expanding aerospace industry. The Southeast Asian nation, one of the wealthiest and most developed countries in the region, has invested substantially in the aviation industry, connecting Malaysia to the world economy and global markets. ATI in Malaysia is undergoing modernization in order to keep pace with rapidly expanding passenger and cargo markets and the commensurate accretion of fleets.

Aiming to enhance the administration of aviation matters, in 2011 the government of Malaysia considered restructuring the Department of Civil Aviation, which provides regulatory oversight as well as ANSs, into an autonomous Civil Aviation Authority. Restructuring has yet to take place, but would enhance civil aviation on multiple levels including regulation, oversight and operations if and when completed.

Upon signing a bilateral aviation safety agreement in 1997 with the FAA, the fifth BASA in the world at the time, Malaysia became a nation conducive to aerospace industries and foreign investment. Today, Malaysia manufactures and exports a plethora of aerospace products including aircraft parts for OEMs, avionics, composite components, as well as light aircraft.

Malaysia currently operates an extensive and well-developed airport network. Eight international airports connect the nation to global markets, with Kuala Lumpur International Airport serving as the major hub for operations in the region. A growing demand for LCCs in Asia has resulted in multiple expansions to terminals at KLIA, with the newest addition, the largest LCC terminal in the world, expected to open for operations in 2012. True to the airport model of the Asian region, management and operations of all airports in Malaysia are privatized. Aeronautical and non-aeronautical charges at airports are regulated by the government of Malaysia. Proposals for changing levels of charges must be submitted to the DCA, where no policies are in place to establish a basis for the decision making process.



BACKGROUND

- During the late 18th and 19th centuries, Great Britain established colonies and protectorates in what is now Malaysia; these were occupied by Japan from 1942 to 1945. In 1948, the British-ruled territories on the Malay Peninsula except Singapore formed the federation of Malaya, which became independent in 1957. Malaysia was formed in 1963 when the former British colonies of Singapore as well as Sabah and Sarawak on the northern coast of Borneo joined the federation. The first several years of the country's independence were marred by a Communist insurgency, Indonesian confrontation with Malaysia, Philippine claims to Sabah, and Singapore's departure from the federation in 1965. During the 22-year term of Prime Minister Mahathir bin Mohamad (1981-2003), Malaysia was successful in diversifying its economy from dependence on exports of raw materials to the development of manufacturing, services, and tourism. Prime Minister Mohamed Najib bin Abdul Razak (in office since April 2009) has continued these pro-business policies.
- It has a population of about 29,179,952 (July 2012 est.).
- Malaysia is made up of a federal parliamentary democracy with a constitutional monarch and three



branches of government: Executive— Yang di-Pertuan Agong (head of state and customarily referred to as the king; has ceremonial duties), prime minister (head of government), cabinet. Legislative— bicameral parliament, comprising 70-member Senate (26 elected by the 13 state assemblies, 44 appointed by the king on the prime minister's recommendation) and 222-member House of Representatives (elected from single-member districts). Judicial— Federal Court, Court of Appeals, high courts, sessions courts, magistrate's courts, and juvenile courts. Sharia courts hear cases on certain matters involving Muslims only.

- Since it became independent in 1957, Malaysia's

economic record has been one of Asia's best. Real gross domestic product (GDP) grew by an average of 6.5 percent per year from 1957 to 2005. Performance peaked in the early 1980s through the mid-1990s, as the economy experienced sustained rapid growth averaging almost eight percent annually.

BRIEF HISTORY

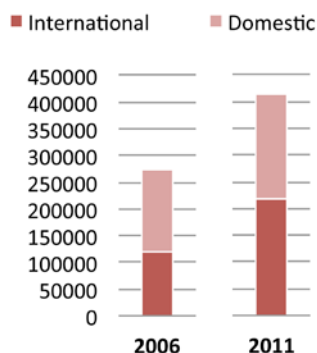
- The Department of Civil Aviation (DCA) is established as an agency under the Ministry of Transport (MOT) Malaysia to provide safe, efficient and orderly flow of air transportation, and to regulate aviation activities in Malaysia. The rapid expansion of Malaysia's aviation and air transport industries is largely due to the pragmatic approach taken by DCA in ensuring compliance to standards and recommended practices of the International Civil Aviation Organization (ICAO).
- The air traffic management sector is the largest sector in the Department of Civil Aviation Malaysia with 761 air traffic controllers and 193 supporting staff nationwide. The function of the air traffic management sector is basically management of Malaysian Airspace (Kuala Lumpur FIR and Kota Kinabalu FIR), management of traffic movement in the air and on the ground, management of Air Traffic Services personnel, according to International Standards specified by International Civil Aviation Organisation (ICAO).
- The Civil Aviation Act of 1969 requires the Director General Civil Aviation to exercise regulatory functions in respect of airworthiness through the establishment of standards, recommended practices and guidelines, and their enforcement. This function is delegated to the airworthiness division.
- The air transport industry plays an important role in the nation's economy. It is also a foreign exchange earner. Air transport facilitates, supports and promotes other sectors such as business,

trade, and tourism.

AIRPORTS

Total	118
Paved Runways	38
> 10,000ft	7
8,000ft – 10,000ft	10
5,000ft to 7,999ft	6
< 4,999ft	15
Heliports	3

Malaysia Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Malaysian Airlines by 2011 Scheduled Seats

AirAsia	17,059,140
Malaysia Airlines	16,278,498
Firefly	3,522,339
AirAsia X	1,576,869

Top Five Foreign Airlines by 2011 Scheduled Seats

Indonesia AirAsia	974,721
SilkAir	615,326
Cathay Pacific Airways	516,146
Emirates Airlines	514,785
Tiger Airways	436,680

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Title: Director, Airport Standards
Name: Mr. Mohd Yunus Charlie Charington
Title: Director, Air Transport
Name: Mr. Remli Mohamad
Title: Director, Malaysia Aviation Academy
Name: Mr. Kamaruzaman Yaacob
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Mexico

SENEAM

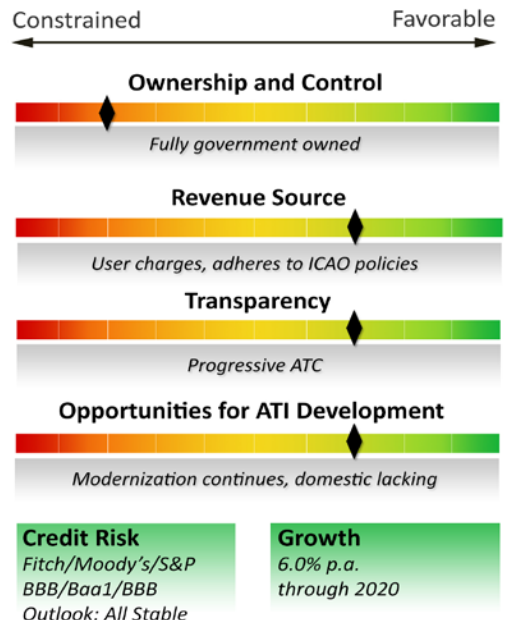
■ NEXA ASSESSMENT

Mexico has a central geographic location between North and South America, providing a key link between the two continents and their economies. However, given the poor quality of land-based transport infrastructure, Mexico requires good air transport and shipping links to provide fast and efficient links to the major global markets. As the third largest and second most populous country in Latin America, Mexico has developed an extensive transportation network to meet the needs of the economy.

Mexico has an extensive network of modern airports all throughout the territory; flying domestically is considered efficient and safe. Airport infrastructure is the most advanced in Latin America: all the cities with more than 500,000 inhabitants have an airport. All airports are privately owned with the exception of Mexico City International Airport., which remains the largest in Latin America. Under the Airport Law of 1995, foreign investment in airports is capped at 49 percent, with a permit required to obtain majority control.

Airlines lament the level of user charges at Mexican airports, which are among the highest in the world. Airport management use infrastructure upgrade requirements as a justification for these high fees. SENEAM recently awarded Thales a contract for air navigation services, including additional ILS and DME implementation. Mexico also continues to upgrade its satellite communications network, utilizing the VSATPlus family of satellite communications equipment.

Mexico's economic performance is closely tied to the economic cycle in the US. Growth in Mexican domestic demand continues to be constrained by an inefficient and costly physical infrastructure and by the lack of labor reforms that encourage employment growth. Nonetheless, multinational firms are attracted by the geographic and economic benefits of locating in Mexico, though further liberalization is required in several areas to fully develop this potential growth.



BACKGROUND

- Mexico became an independent country in 1821.
- It borders Belize, Guatemala, the United States, the Gulf of California, the Pacific Ocean and the Gulf of Mexico with a population of 114.9 million.
- Consisting of a free market economy in the trillions of dollars with recent expansion of competition in seaports, telecommunications, railroads, electricity generation, natural gas exports, and airports.
- Mexico is defined as a federal republic with the capital located in Mexico City.
- The legal system is a civil law system with influence from US constitutional law theory.
- The chief of state and head of government is Enrique Peña Nieto, elected in July 2012.
- Mexico experienced economic turmoil in 1994 with the devaluation of the peso and again in 2008 with the global financial crisis.
- Today, the country faces many economic challenges, including improving the public education system, upgrading infrastructure, modernizing labor laws, and fostering private investment in the energy sector.



BRIEF HISTORY

- SENEAM is the ANSP in Mexico, created as a government Agency in October 1978.
- Mexico's airspace is approximately six million sq kilometers, handling an average of two million operations a year. Due to its strategic geographical location, Mexico

plays a vital role managing air traffic throughout the Americas.

- SENEAM provides the following services: air traffic control, procedures design, telecommunications, meteorological information and AIP, holding an ISO 9001:2008 certification.
- Air traffic control is provided by four area radar control centers; 12 radar approach control centers, 21 Non-Radar; and 58 control towers.
- SENEAM handles 78 VOR/DME and 22 radar antennas throughout the national territory to provide a safe, orderly, expeditious, and efficient management of air traffic.

COUNTRIES/REGIONS SERVED

Mazatlan Oceanic and Mexico

PERFORMANCE

Employees 2,254
ATCOs 754

FACILITIES

Towers 58 (12 Radar Approach Control, 21 Non-radar)
ACC 4

AIRPORTS

Total 1,819
Paved Runways 250
> 10,000ft 12
8,000ft – 10,000ft 30
5,000ft to 7,999ft 85
< 4,999ft 123
Heliports 1

EQUIPMENT – NAVIGATION

- 78 VOR/DME

EQUIPMENT – SURVEILLANCE

- 22 Radar

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

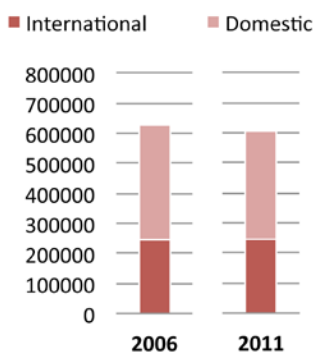
Top Five Mexican Airlines by 2011 Scheduled Seats

Aeromexico 15,848,436
Interjet 8,946,135
Volaris 6,578,297
VivaAerobus 4,188,992
Aviacsa 1,662,000

Top Five Foreign Airlines by 2011 Scheduled Seats

Continental Airlines 2,277,312
American Airlines 2,170,528
Delta Air Lines 1,292,639
US Airways 1,166,291
Alaska Airlines 869,928

Mexico Scheduled Airline O&D Movements



Source: OAG Schedules Database

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Title: Director General Adjunto de Aviación
Name: Ing. Jorge Romero García
Title: Director de Aeropuertos
Name: Lic. José Nicolás Salvador Retana Rozano
Title: Director General Adjunto de Transporte y Control Aeronáutico
Name: Cap. Víctor Torres y Fernández
Title: Director de Control
Name: Lic. María Luisa de Alba Alcántara
Title: Director General Adjunto Técnico
Name: Lic. Cynthia Nohemí Rodríguez Chapa
Title: Director de Desarrollo Estratégico

ANSP CONTACT INFO

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Email: d_operacion@sct.gob.mx
Phone: 5786-5550

Myanmar

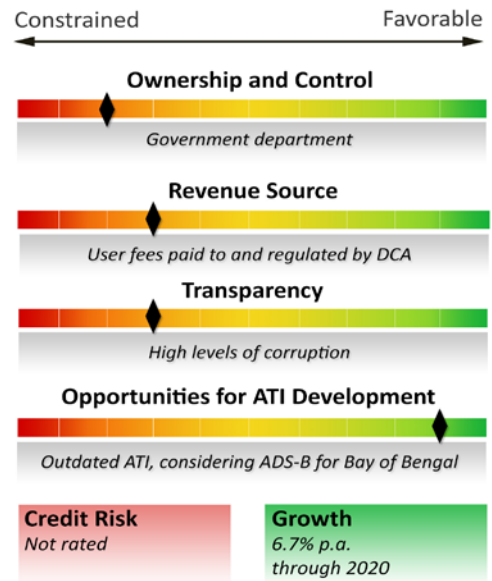
Department of Civil Aviation Myanmar (DCA)

■ NEXA ASSESSMENT

Burma (Myanmar) is a resource-rich country with serious problems. Government and military officials are corrupt, 32 percent of the population lives in poverty and economic policies are inefficient; all leading to Burma as the poorest country in Southeast Asia. The business and investment climates are weak and highly corrupt, with very little foreign investment entering the country. Insufficient infrastructure and inadequate access to capital are only two of many hindrances limiting trade, services and tourism industries. Burma's wealth and natural resources are controlled by an elite group of military leaders and business associates, a gap further widened in 2011 under a faux privatization policy passed by government.

Burma's ANSs are provided by the Department of Civil Aviation (DCA) which is headed by the Director General (DG) and is a subordinate organization under the Ministry of Transport (MOT). Five regulatory bodies, seven service providers and two supporting bodies constitute the DCA, covering all aspects, from regulation to services, of civil aviation in the country.

Burma, while located in a region experiencing high rates of traffic growth, is insignificant as a final destination or connecting hub, ranking 82nd in the world in revenue passenger kilometers (RPK) and 88th for freight tonne kilometers (FTK). Burma has 1,200 miles of coastline bordering the Bay of Bengal, underlying a high density airspace corridor connecting major economies in Asia Pacific, the Middle East and parts of Europe. Burma's surveillance capabilities consist of three SSR and one PSR. Substantial investments in ADS-B infrastructure in the region by ANSPs and industry stakeholders has drawn focus on Burma's CNS. IATA, Airservices Australia, and CAAS are actively promoting ADS-B implementation in Myanmar. The DCA's current ADS-B master plan outlines installation of 5 ADS-B stations, strategically placed based on current regional coverage and international traffic flows transiting Myanmar and the Bay of Bengal area, to begin in 2012 and conclude by 2015. The master plan also outlines possibilities for ADS-B data sharing agreements with regional ANSPs. Enhanced ADS-B data sharing agreements are already in place between CAAS and Airservices Australia, positioning Burma as the final link between Australia and mainland Asia.



BACKGROUND

- The ethnic origins of modern Myanmar (known historically as Burma) are a mixture of Indo-Aryans, who began pushing into the area around 700 B.C. , and the Mongolian invaders under Kublai Khan who penetrated the region in the 13th century. Anawrahta (1044–1077) was the first great unifier of Myanmar.
- Although no official census has been taken since 1983, according to the CIA World Factbook, Myanmar has a population of about 53.99 million (2011).
- The type of government is a nominally civilian regime comprised primarily of former senior military officers.
- Myanmar remains an authoritarian country dominated by active or former members of the military. The nation is headed by a civilian president and two vice presidents. On paper, power is apportioned between executive, legislative, and judicial branches. The military remains an institution unto itself, and the head of the armed forces retains the right to invoke extraordinary powers including the ability to suspend civil liberties and abrogate parliamentary authority.
- The SPDC changed the name of the country to

“Myanmar” in 1989, but some members of the democratic opposition and other political activists do not recognize the name change and continue to use the name “Burma.” Out of support for the democratic opposition and its victory in the 1990 election, the US government likewise uses “Burma.”

- Myanmar is a resource-rich country with a strong agricultural base. It has vast hardwood timber, natural gas, and fishery reserves and is a leading source of gems and jade. Tourist potential remains



underdeveloped because of weak infrastructure and Myanmar's inter-national image, which has been damaged by the regime's human rights abuses and political oppression. Due to Myanmar's poor human rights record, the United States imposed an array of economic and travel sanctions, including bans on the importation of Myanmar's products into the US and the export of financial services from the United States to Myanmar. Australia, Canada, and the EU also impose economic sanctions on the Burmese regime.

- A recent move towards a liberal democracy and improving human rights bodes well for the lifting of international sanctions and restrictions.
- Despite Myanmar's growing GDP, the regime's mismanagement of the economy has created a downward economic spiral for the people of Myanmar. The state remains heavily and inefficiently involved in most parts of the economy, infrastructure has deteriorated, and rule of law does not exist.

BRIEF HISTORY

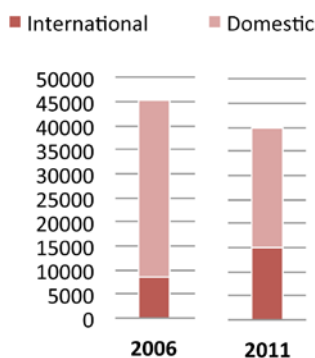
- The Myanmar Adaptation Laws Order of 1948 established regulations for the manufacture, possession, use, operation, sale, import and export of aircraft. The Myanmar Aircraft Act and Rules were last amended on 25th August 2004.
- The DCA is the regulatory body for aviation safety matters in Myanmar.
- The divisions in the DCA responsible for safety oversight are the Flight Standards Division (FSD), the Airworthiness Division (AWD), the Air Navigation Safety Division (ANSD) and the Aerodrome Standards and Safety Division (ASSD).
- The Department of Civil Aviation (DCA) is headed by the director general (DG) and is a subordinate organization under the Ministry of Transport (MOT). The DG, as the head of the DCA, is authorized by the President and Minister for Transport for the purpose. The DG

may further delegate the powers vested in him to other DCA officers to fulfill the obligations for effective safety oversight.

AIRPORTS

Total	76
Paved Runways	37
> 10,000ft	12
8,000ft – 10,000ft	8
5,000ft to 7,999ft	15
< 4,999ft	2
Heliports	6

Myanmar Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Myanmar Airlines by 2011 Scheduled Seats

Air Bagan	631,435
Myanma Airways	537,318
Air Mandalay	477,470
Myanmar Airways Intl	285,596
Air KBZ	64,032

Top Five Foreign Airlines by 2011 Scheduled Seats

Thai Airways Intl	218,416
Thai AirAsia	118,800
SilkAir	116,804
Bangkok Airways	114,178
AirAsia	65,700

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Name: Mr. Ye Thut Aung
Title: Director, Administration and Planning Division
Name: Mr. Thet Lwin
Title: Acting Director, Aeronautical Communication
Name: Mr. Tike Aung
Title: Acting Director, Air Traffic Services
Name: Mr. Kyaw Soe
Title: Director, Aerodrome Safety and Standard Division
Name: Mr. Kyaw Sein Hla
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Netherlands

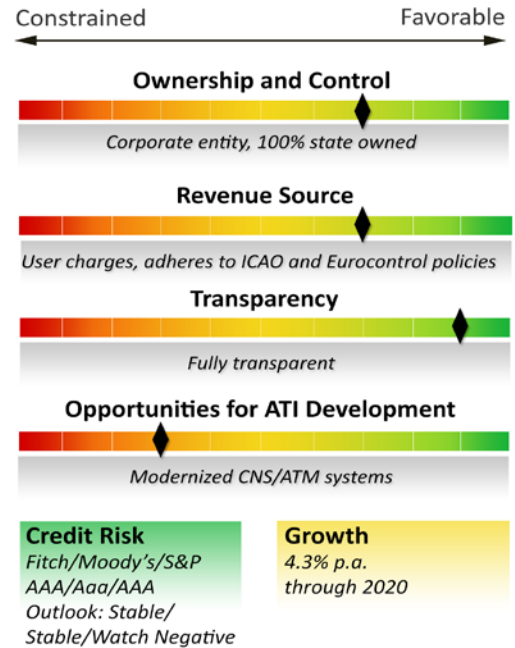
Luchtverkeersleiding Nederland (LVNL)

■ NEXA ASSESSMENT

The aviation industry and ATI in the Netherlands are key enablers for long-term economic growth, not only in the country but for the region as well. The worldwide disruptive effects of the volcanic eruption in Iceland in 2010 on airlines, airports, passengers and economies outline the importance of the connectivity European air transportation provides. Schiphol Airport in Amsterdam, Netherlands' principal hub, handles approximately 94 percent of passenger traffic in the Netherlands and is the fourth busiest airport in Europe, serving as an important pillar of connectivity between Europe and the global market. Additionally, various international surveys continue to rank the Netherlands as one of most competitive and favorable business and investment climates, contributing to the promise of the ATI market.

With the EU facing many economic and political uncertainties in the near future, all parts of the air transportation supply chain in the Netherlands will need to position themselves to quickly adapt to a changing environment, especially airlines. Air France-KLM reported an operating loss of €353 million in 2011, prompting the launch of a turnaround program, Transform 15, aimed at restoring profitability. With the volatility of oil expected to continue, air carriers in Europe, including Air France-KLM, are aiming to reduce operating costs elsewhere. Air France-KLM is looking to reduce costs by 10 percent, excluding fuel, by reducing scheduled capacity in order to increase load factors.

Netherlands' ANSP, LVNL, an independent administrative body, is responsible for the control of civil airspace and all related activities. LVNL opened a new ATC center in April 2012, capable of handling the duties of the Schiphol-East center in the event of a calamity. Due to monetary impacts on stakeholders and economies during air transportation disruptions, as witnessed during the volcanic eruption, redundant ATI capabilities are a necessary safeguard to ensure ANSPs can be provided on a nonstop basis. The backup system was in place just in time for increased traffic movements during the 2012 Olympic Games in London. LVNL has been working together with FABEC ANSPs, including Eurocontrol's MUAC, to minimize air traffic delays and congestion by implementing new flight profiles, opening new routes in upper airspace and creating special direct routes through the Netherlands, France and Germany.



BACKGROUND

- The Netherlands is currently the fifth-largest economy in the euro-zone and holds a population of 16.8 million people.
- The Netherlands is noted for stable industrial relations, moderate unemployment and inflation, and a sizeable trade surplus.
- The Netherlands borders the North Sea, Germany and Belgium and plays an important role as the European transportation hub.
- The Netherlands experienced 26 years of uninterrupted economic growth until 2009, when the effects of the global financial crisis contracted the international trade and finance-dependent economy.
- The government has recently sought to boost the economy by accelerating infrastructure programs, offering corporate tax breaks, and expanding export credit facilities.
- The Netherlands is a constitutional monarchy with 12 provinces and the capital located in Amsterdam. Independence was declared in 1581 with the current



constitution adopted in 1815 and most recently amended in 2002.

- The legal system is a civil law system based on the french system.
- Queen Beatrix has held the chief of state position since

1980. The prime minister, Mark Rutte, and deputy prime minister, Maxime Verhagen, have held the positions since October of 2010.

BRIEF HISTORY

- Air traffic control is the core activity of Air Traffic Control the Netherlands – LVNL.
- The Aviation Act provides for modernizing and managing technical systems, giving aeronautical information, catering for air traffic control training and providing aviation charts and publications. In short, LVNL is responsible for the control of civil airspace and everything related. It was founded in 1923.

COUNTRIES/REGIONS SERVED

Amsterdam

PERFORMANCE

Employees 855
ATCOs 192

FACILITIES

Towers 4
ACC 1

AIRPORTS

Total 27
Paved Runways 20
> 10,000ft 2
8,000ft – 10,000ft 9
5,000ft to 7,999ft 3
< 4,999ft 6
Heliports 1

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Dutch Airlines by 2011 Scheduled Seats

KLM-Royal Dutch Airlines	16,047,954
Transavia.com	2,759,748
Corendon Airlines	277,150
Arkefly	188,982

Top Five Foreign Airlines by 2011 Scheduled Seats

easyJet	1,847,804
Delta Air Lines	1,433,333
Ryanair	1,135,134
Air France	906,378
British Airways	724,548

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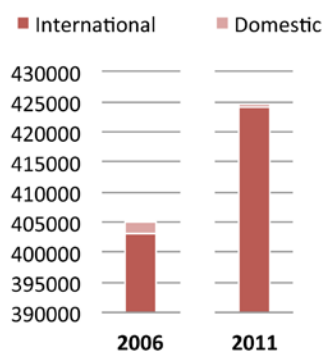
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Netherlands Scheduled Airline O&D Movements



Source: OAG Schedules Database

New Zealand

Civil Aviation Authority of New Zealand (CAA)

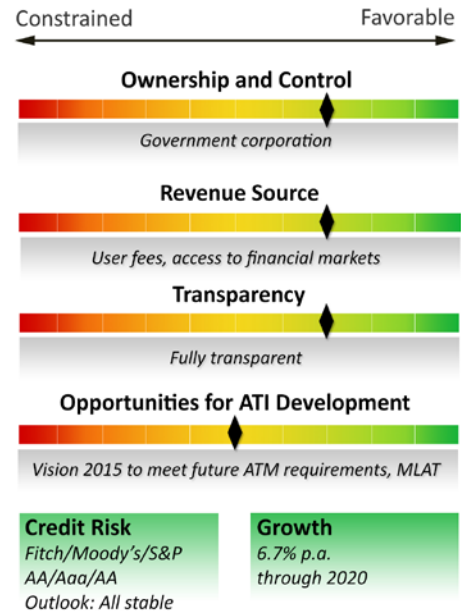
■ NEXA ASSESSMENT

New Zealand's geographic isolation and dependence on tourism are supporting factors for commercial aviation and ATI. A high projected traffic growth and a regional commitment to upgrade technology at an equivalent pace put New Zealand among a group of countries that would greatly benefit from harmonization of technology, procedures, and policy to ensure no loss of benefits across the segmented airspace. Key trade sectors which rely on commercial aviation services are still vulnerable to a weak external demand among strategic trade partners, mostly in the South Pacific region. Investment opportunities in the country include infrastructure finance, tourism, information technology, whole aircraft and aircraft parts.

Airways New Zealand, created in 1987 as the world's first fully commercialized ANSP, provides ANSPs in 30 million sq kilometers of airspace covering New Zealand, Tonga, Samoa and Cook islands. Airways operations are completely separated from safety regulations, which fall under the responsibility of the CAA. Airways has twice won IATA's award for best ANSP in the world, 2003 and 2008. Airways, governed by the same legislation as other New Zealand corporations and legally bound to operate on a commercial basis (including requirements to make a profit) self-regulates, with significant input from the Board of Airline Representatives of New Zealand. Airways NZ, which doesn't share the same enthusiasm as Airways Australia for ADS-B for en route surveillance, has implemented WAM systems with the help of ERA for increased surveillance capabilities in the mountainous regions. WAM will help Airways NZ transition to ADS-B by 2020, much later than neighboring Australia.

New Zealand has built an extensive airport network with three main airports, Auckland, Wellington, and Christchurch, serving as the busiest international hubs. Commercialization of airports in New Zealand began in 1961. Since then, airport ownership and partnerships have evolved, resulting in the Auckland and Wellington airports becoming privatized. Government policies to reduce public debt and financial burdens have led to privatization across all sectors in New Zealand.

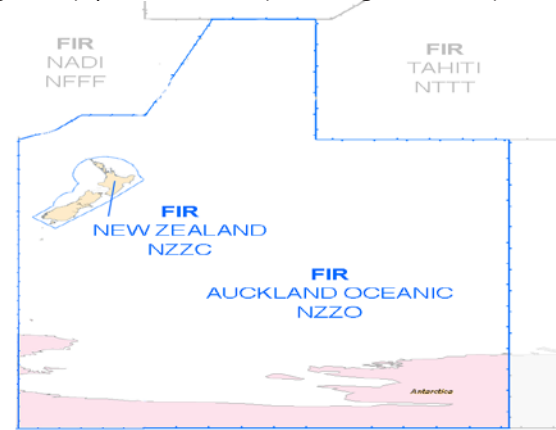
Air New Zealand recently won Air Transport World's Airline of the Year award for the second time in three years. Air NZ excels in a number of areas and is specifically recognized for its innovation. New Zealand's government currently holds 73.36 percent of the equity in the country's flag carrier.



BACKGROUND

- Archaeological evidence indicates that New Zealand was populated by fishing and hunting people of East Polynesian ancestry perhaps 1,000 years before Europeans arrived.
- Constitutional government began to develop in the 1850s. In 1867, the Maori won the right to a certain number of reserved seats in parliament. During this period, the livestock industry began to expand, and the foundations of New Zealand's modern economy took shape. By the end of the 19th century, improved transportation facilities made possible a great overseas trade in wool, meat, and dairy products.
- New Zealand was declared a dominion by royal proclamation in 1907. It achieved full internal and external autonomy by the Statute of Westminster Adoption Act in 1947, although this merely formalized a situation that had existed for many years.
- It has a population of 4.42 million and a parliamentary government with three branches: executive— Queen

Elizabeth II (head of state, represented by a governor general), prime minister (head of government), cabinet,



legislative – unicameral House of Representatives, commonly called parliament and judicial– four-level system: District Courts, High Courts, the Court of Appeal,

and the Supreme Court, which in 2004 replaced the Judicial Committee of the Privy Council in London as New Zealand's highest court of appeal. There also are specialized courts, that deal with employment, family, youth, and Maori land.

- Over the past 20 years, the government has transformed New Zealand from an agrarian economy dependent on concessionary British market access to a more industrialized, free market economy that can compete globally. This dynamic growth has boosted real incomes – but left behind some at the bottom of the ladder – and broadened and deepened the technological capabilities of the industrial sector.
- The economy fell into recession before the start of the global financial crisis and contracted for five consecutive quarters in 2008-09. In line with global peers, the central bank cut interest rates aggressively, and the government developed fiscal stimulus measures. The economy posted a two percent decline in 2009, but pulled out of recession late in the year, and achieved 1.7 percent growth in 2010 and two percent in 2011. Nevertheless, key trade sectors remain vulnerable to weak external demand. The government plans to raise productivity growth and develop infrastructure, while reining in government spending.

BRIEF HISTORY

- Civil aviation in New Zealand operates within a system established and maintained in accordance with the Civil Aviation Act of 1990.
- The CAA establishes civil aviation safety and security standards, and monitors adherence to those standards. The CAA carries out accident and incident investigations and collates this material to establish an industry-wide safety picture. This becomes the basis of safety initiatives ranging from education campaigns to increased monitoring and regulatory action.
- The CAA is a transport Crown

entity responsible to the Minister of Transport.

- The CAA is governed by the Authority – a five member board appointed by the Minister to represent the public interest in civil aviation.
- The Authority appoints the CAA's chief executive – the Director of Civil Aviation. As well as the functions and powers delegated by the Authority, the director has powers conferred by the Act, which are performed independently of both the Minister and the Authority.
- New Zealand has a reputation for modern aviation legislation and rules. Its safety system and certification practices are recognised in bilateral agreements with other States.

PERFORMANCE

Employees	751
ATCOs	344

FACILITIES

Towers	18
ACC	N/A

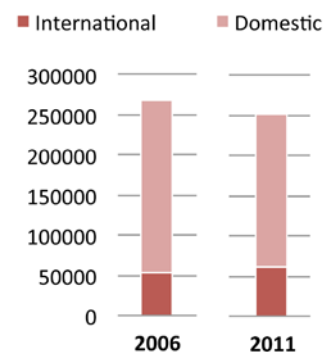
AIRPORTS

Total	122
Paved Runways	40
> 10,000ft	2
8,000ft – 10,000ft	1
5,000ft to 7,999ft	12
< 4,999ft	25

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five New Zealand Airlines by 2011 Scheduled Seats

New Zealand Scheduled Airline O&D Movements



Source: OAG Schedules Database

Air New Zealand	13,464,523
Air Chathams	24,772

Top Five Foreign Airlines by 2011 Scheduled Seats

Jetstar Airways	2,406,513
Qantas Airways	979,803
Virgin Australia	714,780
Emirates Airlines	566,019
Singapore Airlines	263,414

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Federal Republic of Nigeria

Nigerian Airspace Management Agency (NAMA)

■ NEXA ASSESSMENT

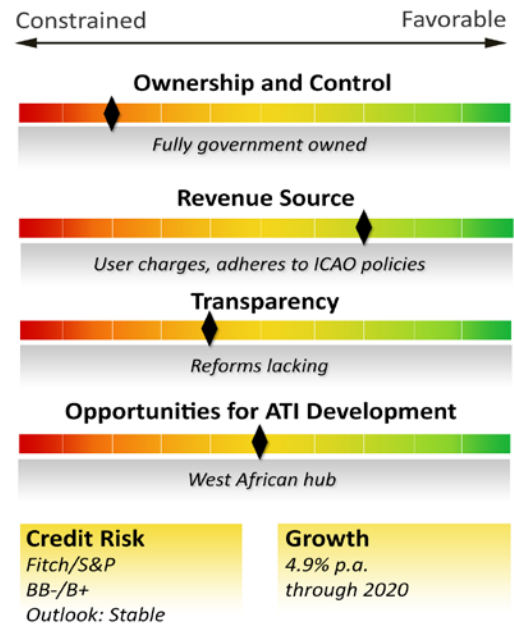
Africa's most populous country, Nigeria has experienced a tripling of its air transport market between 2004 and 2007, largely due to the rapid expansion of domestic services from a recently economically-empowered portion of the population. Its sector is second only to South Africa among its Sub-Saharan peers. In August 2010 Nigeria became one of the few countries in Sub-Saharan Africa (Cape Verde, Ethiopia, and South Africa) whose safety oversight is considered good enough for the United States to allow direct flights by Nigerian carriers from Nigeria to the United States.

At present there are 19 airports under the Federal Airports Authority of Nigeria (FAAN), but approximately 78 airfields exist in Nigeria out of which 30 are privately owned and operated. Four of these airports, namely, Lagos, Abuja, Kano and Port Harcourt are of international standards and serve intercontinental, international, and domestic destinations. Three main airports – Lagos, Abuja and Kano – account for over three quarters of passenger and aircraft movements in Nigeria, while Lagos alone accounts for slightly over half of the international and domestic passengers carried.

Nigeria has made progress. It has implemented its Total Radar coverage project, and the ATC system now includes digital VHF communications (eight airports), PBN procedures (24 airports) and AIS capabilities. Nigeria's centralized location, safety record, and modern aircraft fleets would logically position it as a prime hub for air traffic within West Africa, but progress has lagged due to the lack of reforms and private sector involvement within the FAAN.

While Nigeria continues to rhetorically emphasize privatization initiatives, much of its infrastructure focus is on road and rail network development, with little attention to air traffic infrastructure, despite a 2010 US\$3.3 billion recovery fund from the Central Bank of Nigeria to refinance loans for troubled airlines. Also, the country has recently become embroiled in larger security concerns stemming from offshoots of the global terrorism movement. Screening procedures and equipment continue to become more of a focus for airport operators.

Like many other resource-rich African nations, Nigeria has proved to be an attractive investment for China, although some recent China-backed projects have been dropped in recent years. With public funds and domestic capital markets well-funded but ineffective in directing investment to air infrastructure, private international support will likely need to continue to help Nigeria reach its considerable potential as a major African player.



BACKGROUND

- A former British colony that achieved independence in 1960.
- The government continues to face the daunting task of reforming a petroleum-based economy, whose revenues have been squandered through corruption and mismanagement, and institutionalizing democracy.
- In January 2010, Nigeria assumed a nonpermanent seat on the UN Security Council for the 2010-11 term.
- A country situated in West Africa with a population of over 155 million people and an area of 923,768 sq kilometers.
- Government is a federal republic with a mixed legal system of English common law, Islamic law (in 12 northern states), and traditional law.
- President Goodluck Jonathan (since May 2010, acting since February 2010); Vice President Mohammed



Namadi Sambo (since May 2010).

- Bicameral National Assembly consists of the Senate (109 seats, 3 from each state plus 1 from Abuja; members elected by popular vote to serve four-year terms) and House of Representatives (360 seats; members elected by popular vote to serve four-year terms).

BRIEF HISTORY

- The Nigeria Airspace Management Agency (NAMA) was created by Act No. 48 of 1999. Its goal is to develop national airspace infrastructure to a level consistent with the requirements of the ICAO Standards and Recommended Practices (SARPs).

COUNTRIES/REGIONS SERVED

Provides air traffic services to the Kano FIR in Nigeria. This includes VFRs, IFRs, search & rescue, aeronautical telecommunication services and electronic supplies relating to public transport, private business and military aircrafts.

PERFORMANCE

Employees 1,818
ATCOs 279

FACILITIES

Towers 25
ACC 2

AIRPORTS

Total 54
Paved Runways 38
> 10,000ft 9
8,000ft – 10,000ft 11
5,000ft to 7,999ft 10
< 4,999ft 8
International 4
Domestic 18
Heliports 4

EQUIPMENT – COMMUNICATION

- Air-to-ground radio comm. network
- HF voice and data network
- Telephone/switching systems
- Sat. comm. network (AFISNET)
- ATFN
- ATS direct speech
- Remote controlled air-to-ground net-work

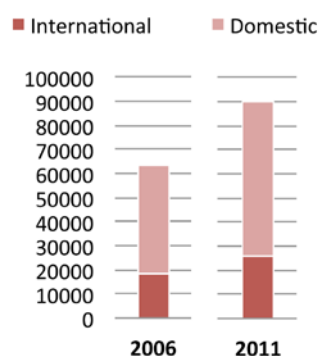
EQUIPMENT – NAVIGATION

- ILS
- VORs
- DVORs
- DMEs
- VDFs
- Beacons
- Locator Beacons
- NDBs

EQUIPMENT – SURVEILLANCE

- Primary surveillance radar (PSR)
- Monopulse secondary surveillance radar (MSSR)

Nigeria Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Nigerian Airlines by 2011 Scheduled Seats

Arik Air	3,328,485
Aerocontractors	2,404,432
Air Nigeria	1,606,790
Dana Airlines	642,320
Max Air	91,960

Top Five Foreign Airlines by 2011 Scheduled Seats

Emirates Airlines	225,922
Ethiopian Airlines	218,936
British Airways	205,495
Lufthansa German Airlines	174,725
KLM-Royal Dutch Airlines	147,514

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Name: Engr. P.O. Ekunwe
Title: Director, Airworthiness Standards

Name: Capt. A.M. Sidi
Title: Director, Operations & Training

Name: Mrs. E. Ebilah
Title: Director, Finance & Administration

Name: Alh. Adamu Abdullahi
Title: Director, Consumer Protection

Name: Capt. E. Ogunbambi
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Norway

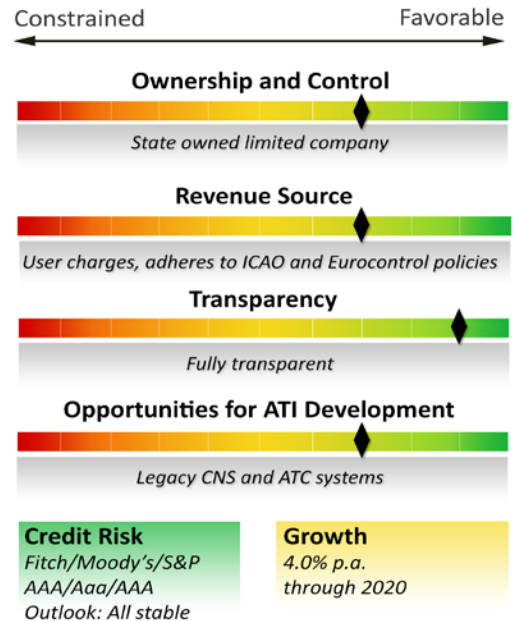
Avinor

■ NEXA ASSESSMENT

Norway, with a sparsely populated and mountainous landscape, is one of the wealthiest countries in the world based on per capita income. With 25 days of annual vacation, in addition to public holidays, and a higher propensity to travel based on per capita income, Norway's air transport industry and ATI market have prospects. While the market size of ATI in Norway is relatively small, the country is considered worldwide as a test market for new products and technology, with an easy-to-enter export market.

Norway's ANSP, Avinor, set up as a limited company under the Ministry of Transport and Communications, is also in charge of managing 46 airports and the CNS/ATM infrastructures. Oslo Lufthavn AS, a wholly-owned subsidiary of Avinor, is responsible for managing Norway's main hub, Gardermoen. During 2011, Gardermoen experienced a 10.4 percent increase in passengers, and Norwegian airspace saw an increase of 11.6 percent in movements, clear indicators for infrastructure investments to accommodate future traffic levels. Construction began in 2011 on a second terminal at Gardermoen, with financing of €200 million coming from European Investment Bank. While much of the focus in neighboring countries to the south of Norway involves phasing out SSR for more cost-efficient, reliable and accurate technologies, the Norwegian Radar Programme, a project aimed at extending radar coverage over Norway, is investing in ten MSSRs to be operational by the end of 2012, at which time investments in ADS-B and MLAT will be evaluated.

The petroleum sector in Norway is a key economic driver. Norway is the world's seventh largest exporter of crude oil and the second largest exporter of natural gas. Petroleum extraction off the coast of Norway is supported by an extensive array of oil rigs in the North, Norwegian, and Barents Seas. Although commercial passenger and cargo traffic in Norway won't transition to ADS-B in the near future, the Ekofisk ADS-B Implementation Project is establishing offshore ADS-B capabilities for surveillance of the myriad helicopters providing transportation services to oil platforms. Norway led the world in oil and gas discoveries in 2011, establishing the foundation for ATI growth along the Norwegian Continental Shelf.

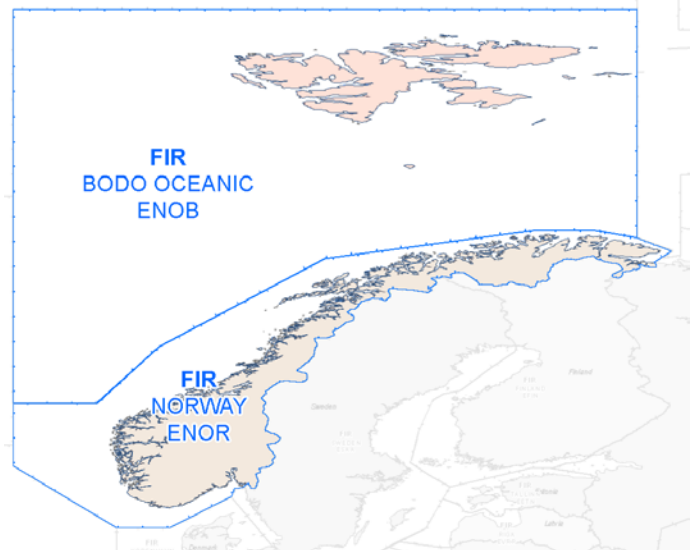


BACKGROUND

- Area totaling 323,802 sq kilometers with a population of 4.7 million.
- Norway opted to stay out of the EU but is a member of the European Economic Area.
- The national government is a constitutional monarchy. It has a mixed legal system of civil, common, and customary law.
- King Harald V has been chief of state since January 1991. Prime Minister Jens Stoltenberg was appointed October 2005.

BRIEF HISTORY

- Avinor was established as a limited company, wholly owned by the state, on January 2003.
- The ownership is administered by the Ministry of Transport and Communications and is governed by the Civil Aviation Authority of Norway (CAA).
- The company was formerly the administrative company Luftfartsverket.



COUNTRIES/REGIONS SERVED

Avinor serves the Norway and Bodo Oceanic Flight Information Regions (2,169,000 sq kilometers), providing

terminal, en route and oceanic IFR/VFR air traffic control, meteorological and aeronautical information and publications services for commercial, general aviation and military customers.

PERFORMANCE

Employees 2,886
ATCOs 473

FACILITIES

Towers 46
ACC 3

AIRPORTS

Total 98
Paved Runways 67
> 10,000ft 1
8,000ft – 10,000ft 12
5,000ft to 7,999ft 11
< 4,999ft 43
Heliports 1
Approach Control Centers 17
Flight Info Stations 28

EQUIPMENT – NAVIGATION

- 24 Doppler VORs
- 11 VORs
- 107 DMEs
- 55 NDBs
- 57 ILSs

EQUIPMENT – SURVEILLANCE

- ADS-Bin the Ekofisk area, in combination with MLAT (WAM)
- SCAT-I installed at Brønnøysund, Hammerfest, Vadsø, Namsos, Båtsfjord and Svolvær airports, and it will be installed at Førde, Berlevåg, Hasvik, Vardø, Stokmarknes and Mosjøen airports in 2011.

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

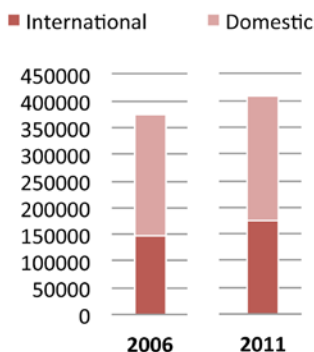
Top Five Norwegian Airlines by 2011 Scheduled Seats

SAS Scandinavian Airlines 12,598,182
Norwegian Air Shuttle 11,022,880
Wideroes Flyveselskap 4,705,955

Top Five Foreign Airlines by 2011 Scheduled Seats

Ryanair 1,585,899
KLM-Royal Dutch Airlines 958,464
Lufthansa German Airlines 635,536
Danish Air Transport 327,529
Wizz Air 225,900

Norway Scheduled Airline O&D Movements



Source: OAG Schedules Database

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note– the embassy will move to Huseby in the near future
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Name: Mr. Espen Slyngstad
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Oman

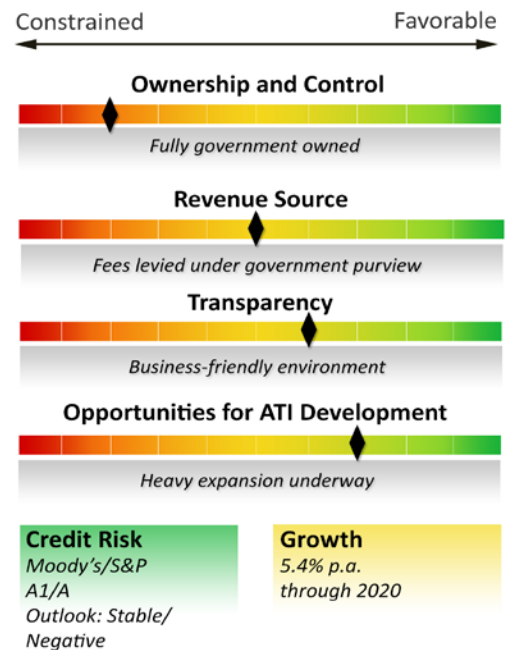
Civil Aviation Affairs (CAA)

■ NEXA ASSESSMENT

Oman is a Middle Eastern country committed to diversifying away from a dependence on oil revenues and, similar to its neighbors, sees the aviation industry as a sector for heavy investment. Despite the impact of the Arab Spring, Oman Airports Management Company (OAMC) has been able to report record passenger numbers at its two main airports, Muscat and Salalah. Growth of Oman's tourism industry will need an efficient and capable national ATM infrastructure, which will need to be integrated with the rest of the Gulf region. The investment that the Oman government is making now in its national ATM system should help support the development of the national tourism industry.

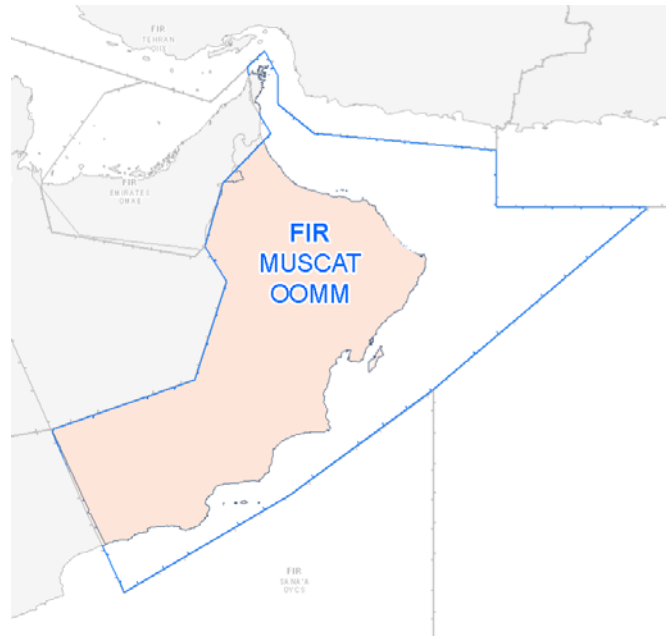
A sizeable market exists in Oman for meeting the Sultanate's transportation needs. Oman has announced it will adopt a new air traffic management system to complement the massive investment it is making in its airport sector. In late 2010, the Oman government confirmed it had awarded Indra a US\$105 million contract to develop and implement a new ATM system for the country. The standardized, nationwide air traffic management system will also cover four regional airports currently under development at Sohar, Ras al Hadd, Duqm and Adam. Oman's ATM infrastructure development is related to the redevelopment of the country's airport system. Most significantly, OAMC awarded the long awaited contract for the development of the new terminal at Muscat Airport in early 2011. The contract was awarded to a consortium comprised of Bechtel, Enka, and Bahwan Contracting. Work on the US\$1.8 billion project began near the end 2011, although labor issues have already surfaced.

Oman actively seeks foreign investment and is in the process of improving the framework to encourage such investments. The country maintains a business-friendly environment, including the US-Oman Free Trade Agreement; a modern business law framework; respect for free markets, contract sanctity, and property rights.



BACKGROUND

- In 1970, Qaboos bin Said Al-Said overthrew the restrictive rule of his father; he has ruled as sultan ever since. His extensive modernization program has opened the country to the outside world while preserving the longstanding close ties with the UK. Oman's moderate, independent foreign policy has sought to maintain good relations with all Middle Eastern countries. Inspired by the popular uprisings that swept the Middle East and North Africa in 2010-11, Omanis began staging marches and demonstrations to demand economic benefits, an end to corruption, and greater political rights. In February and March 2011, in response to protester demands, Qaboos pledged to create more government jobs and promised to implement economic and political reforms, such as granting legislative and regulatory powers to the Council of Oman and the introduction of unemployment benefits. Also in March, the Gulf Cooperation Council pledged US\$20 billion in financial aid to Oman and Bahrain over a 10-year period to assist the two nations in their struggle with Arab protests.
- It has a population of about 2.69 million (2010).
- The national government is a monarchy with three branches: Executive— Sultan. Legislative— bicameral



Majlis Oman (appointed State Council and elected Consultative Council). Judicial— Civil courts are divided

into four departments: criminal courts handle cases under the penal code; family courts oversee personal status issues using Oman's Personal Status Law, which is based on Sharia (Islamic law); commercial courts adjudicate business and commercial matters; labor courts oversee labor and employment cases.

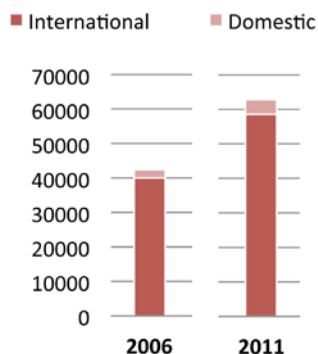
BRIEF HISTORY

- As the Oman Civil Aviation Affairs (Oman CAA) has regulatory responsibility for aviation safety in Oman, the Ministry of Transport and Communications has agreed that the coordination of the Oman State Safety Programme document should be undertaken by the CAA.
- Oman ratified the Convention on International Civil Aviation (the Chicago Convention) in March 1947.
- In general, air navigation services and aerodromes are provided by the government.

AIRPORTS

Total	130
Paved Runways	11
> 10,000ft	6
8,000ft – 10,000ft	4
5,000ft to 7,999ft	0
< 4,999ft	1
Heliports	3

Oman Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Omani Airlines by 2011 Scheduled Seats

Oman Aviation	3,227,332
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Top Five Foreign Airlines by 2011 Scheduled Seats

Air India Express	196,560
flydubai	192,591
Qatar Airways	183,727
Emirates Airlines	182,744
Jet Airways India Ltd	167,460

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 Name: Mr. Affan Khalfan Al-Akzamy

Title: Director, Office of Undersecretary for Civil Aviation Affairs
 Name: Eng. Abdullah Omar Al-Al Ojaili
 Title: Assistant Director General of Safety and Aviation Services for Safety
 Name: Eng. Saif Nasser Al-Hinai
 Title: Deputy Director General for Technical Affairs
 Name: Mr. Hamed Ali Al-Abri
 Title: Assistant Director General of Meteorology and Air Navigation for Air Navigation Affairs
 Name: Mr. Nasser Saif Al-Riyami
 Title: Advisor of Civil Aviation
 Name: Eng. Nasser H. Al-Kindy
 Title: Acting Director of Flight Safety and Operations
 Name: Mr. Ahmed Hamoud Al-Harthy
 Title: Director of Operation and Technical Services
 Name: Eng. Nasser Harith Al Brashdy
 Title: Acting Director of Air Navigation Services
 Name: Mr. Anwar Abdullah Al-Raisi
 Title: Acting Director of Air Traffic Control
 Name: Ms. Maiya Said Al-Harrasi
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Pakistan

Pakistan Civil Aviation Authority (PCAA)

■ NEXA ASSESSMENT

Pakistan has suffered from decades of internal political disputes and low levels of foreign investments, leading to an underdeveloped economy lacking critical infrastructure. Recent inflation has worsened an already troubled economy and poverty-stricken nation, estimated at 50 percent of the country's population of 190 million. Although the weak economy has stabilized since the 2008 crisis, foreign investment has not returned due to concerns of governance, energy, security, and the global economy. Pakistan's dependence on international assistance and domestic political uncertainties present major challenges to foreign investment in the instauration of its inadequate ATI.

PCAA is a public sector autonomous body, under the direction of the government of Pakistan through the Ministry of Defense. PCAA is responsible for regulations, ANSs, airport management, infrastructure, and commercial development at airports, as well as a strategic portion of airspace connecting India's and China's emerging economies to Europe and the Middle East. Given Pakistan's mountainous terrain and the regional implementation of and mandates for ADS-B, Pakistan is the next opportunity for CNS/ATM infrastructure upgrades that enhance regional benefits to airlines from harmonization while addressing safety and operational capabilities from outdated technology in Pakistan.

The Pakistani government, with the help of Aéroports de Paris, is constructing the first greenfield airport project in Pakistan near the city of Islamabad. The new airport, which will be the largest in Pakistan, is being built to replace the current airport which is immensely undersized and outdated. Commercial aviation at the current airport, constrained airspace as the airport is jointly used for military aircraft as well as landside due to undersized facilities, will be phased out as the new airport is expected to open for operations in 2014.

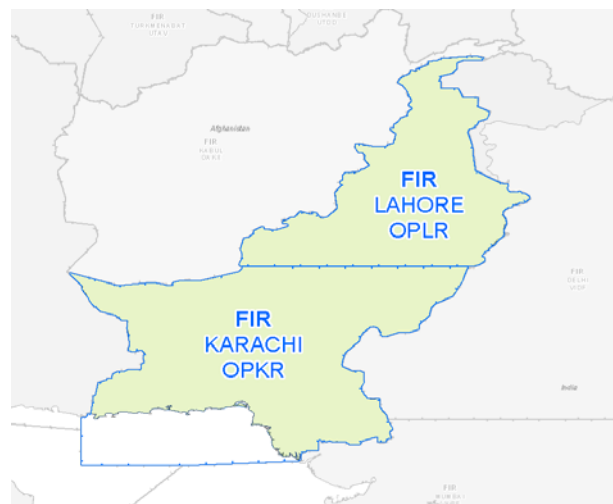
Pakistan's wholly government owned flag carrier, Pakistan International Airlines, retained 39 percent of the international market share and increased the domestic share to 76 percent in 2011, also adding several new destinations.

Pakistan, India, and China are involved in ongoing territory disputes, turning the border into a hotbed for ISR equipment including radars and UAVs. These countries are currently involved in a UAV capability race, both armed and unarmed, with each country drawing on support from countries with international interests.



BACKGROUND

- Pakistan declared independence in 1947 from British India and is now composed of four provinces, one territory and one capital territory.
- Afghanistan, China, India, Iran and the Arabian Sea border Pakistan.
- It has a population of 190.2 million.
- Decades of internal political disputes and low levels of foreign investment have led to slow growth and underdevelopment in the country.
- It is defined as a federal republic with the capital located in Islamabad. The legal system is common law with influence from Islamic law.
- India and Pakistan have international territorial disputes over the Kashmir region.
- The Pakistani government and military leaders are struggling to control domestic insurgents, many of whom are located in the tribal areas adjacent to the border with Afghanistan.



- The government agreed to an International Monetary

Fund Standby Arrangement in November 2008 in response to a balance of payments crisis. Although the economy has stabilized since the crisis, it has failed to recover. Foreign investment has not returned, due to investor concerns related to governance, energy, security, and a slow-down in the global economy.

- Pakistan remains stuck in a low-income, low-growth trap, with growth averaging 2.9 percent per year from 2008 to 2011. Pakistan must address longstanding issues related to government revenues and energy production in order to spur the amount of economic growth that will be necessary to employ its growing population. Other long-term challenges include expanding investment in education and healthcare, and reducing dependence on foreign donors.

BRIEF HISTORY

- Pakistan Civil Aviation Authority is a public sector autonomous body working under the federal government of Pakistan through the Ministry of Defence. It was established on December, 1982 as an autonomous body. Prior to its creation, a Civil Aviation Department in the Ministry of Defence managed the civil aviation related activities.
- A variety of civil aviation related activities are performed by CAA including regulatory, air traffic services, airport management, infrastructure and commercial development at the airports, etc.

COUNTRIES/REGIONS SERVED

Karachi and Lahore

AIRPORTS

Total	148
Paved Runways	101
> 10,000ft	15
8,000ft – 10,000ft	20
5,000ft to 7,999ft	39
< 4,999ft	27
Heliports	20

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

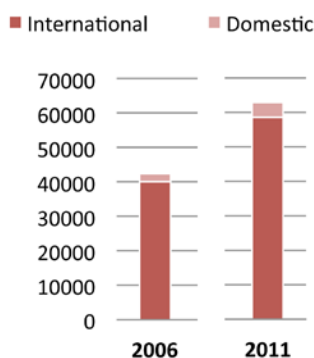
Top Five Pakistani Airlines by 2011 Scheduled Seats

Pakistan Intl Airline	6,549,696
Airblue	966,402
Shaheen Air Intl	942,000

Top Five Foreign Airlines by 2011 Scheduled Seats

Emirates Airlines	606,109
Saudi Arabian Airlines	494,874
Etihad Airways	258,820
Qatar Airways	248,551
Thai Airways Intl	240,360

Pakistan Scheduled Airline O&D Movements



Source: OAG Schedules Database

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Title: Deputy Director General
Name: Capt. Hamid Gardezi
Title: PD Airport Services
Name: Mr. Khawar Ghayas
Title: Director, Air Transport
Name: Air Cdr (R) Gulzar Janjua
Title: Chief of Security
Name: Capt. Syed Hamid Abbas Gardezi
Title: Director Flight Standards
Name: Syed Yousuf Abbas
Title: Director Operations

ANSP CONTACT INFO

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Panama

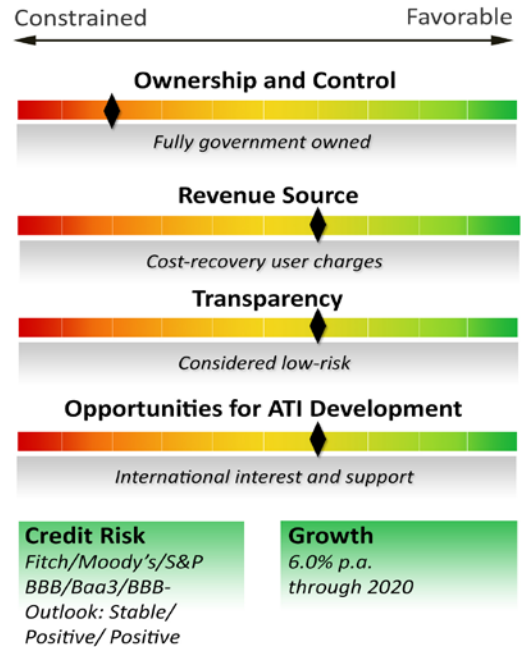
Directorate of Air Navigation

■ NEXA ASSESSMENT

Panama is the most highly connected economy in the American continent. Relative to its GDP, Panama has twice the air connectivity of the United States. Panama's emergence as a regional transportation hub means that the Tocumen Airport must not only handle increased visitors to Panama, but increased air traffic regionally for flights that use Panama as a stop-over point to reach other destinations in Latin America. With an expected 14 million passengers annually to pass through Tocumen Airport by 2025, the airport will be strained to serve almost triple the visitors that in had in 2010. This realization has convinced airport officials to accelerate the planned US\$400 million expansion of the south terminal from 2025 to 2012. Other airport projects are also underway. An additional US\$8 million was approved for the Civil Aviation Authority to begin construction of a new air traffic control and radar approach center, with another US\$12 million slated for investment in 2012.

Major international airlines such as Iberia, KLM, and Lufthansa have shown an interest in increasing flights to Panama, and using the country as a regional hub. Compañía Panameña de Aviación, S.A., operating as Copa Airlines (CM), based in Panama City, serves as Panama's national flag carrier. The airline represents the rapid growth of Panama's air sector, with expanded service throughout the Americas and strong financial performance.

Investors consider Panama low risk in most areas, but there is economic structure risk because of reliance on Panama Canal revenue, a large current account deficit and a high public debt/GDP. Investing further in the air transport network would help diversify this risk by supporting tourism, financial and business services. The US Ex-Im bank envisions a leading role for the country, and provides considerable support in aircraft and aviation supply chain manufacturing.



BACKGROUND

- Panama obtained independence in 1903 and quickly signed a treaty with the US allowing for the construction of the Panama Canal.
- It borders Columbia, Costa Rica, the Caribbean Sea, and the Pacific Ocean. It has a population of 3.5 million.
- Panama is defined as a constitutional democracy with the capital located in Panama City. The legal system is a civil law system.
- The chief of state and head of government is President Ricardo Martinelli Berrocal, serving since 2009.
- In October 2006, Panamanians approved an ambitious plan (estimated to cost US\$5.3 billion) to expand the Canal. The project, which began in 2007 and could double the Canal's capacity, is expected to be completed in 2014-15.
- Panama's dollar-based economy rests primarily on a well-developed services sector that accounts for three-quarters of GDP. Services include operating the Panama Canal, logistics, banking, the Colon Free Zone, insurance, container ports, flagship registry, and tourism.
- The booming transportation and logistics services sectors, along with aggressive infrastructure development projects, have lead the economy to continued growth in

2011.



BRIEF HISTORY

- The National Commission for Aviation was established in 1932 to enforce international regulations related to civil aviation.
- In 2003, laws were passed relating to civil aviation, which among other things established a framework for the management for airports and airfields, and resturctured the the Civil Aviation Authority.

COUNTRIES/REGIONS SERVED

Panama

AIRPORTS

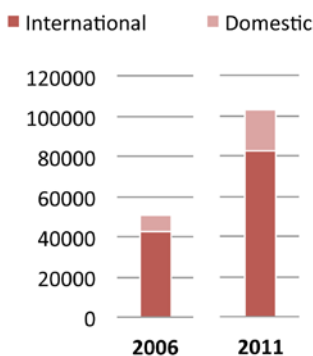
Total	118
Paved Runways	54
> 10,000ft	1
8,000ft – 10,000ft	1
5,000ft to 7,999ft	5
< 4,999ft	47
Heliports	3

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Panamanian Airlines by 2011 Scheduled Seats

Copa Airlines	4,360,776
Aeroperlas	300,158
Air Panama	269,502

Panama Scheduled Airline O&D Movements



Source: OAG Schedules Database

Top Five Foreign Airlines by 2011 Scheduled Seats

Taca Intl Airlines	226,986
Continental Airlines	198,398
American Airlines	178,312
Avianca	129,119
KLM-Royal Dutch Airlines	93,492

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Web: <http://www.aeronautica.gob.pa>

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Name: Ivan Vergara
Title: Director de Transporte Aéreo
Name: Maricel Martínez
Title: Director de Aeropuertos
Name: Sr. Ricardo Deville
Title: Director de Navegación Aérea

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Peru

Peruvian Corporation of Airports and Commercial Aviation, (CORPAC S.A.)

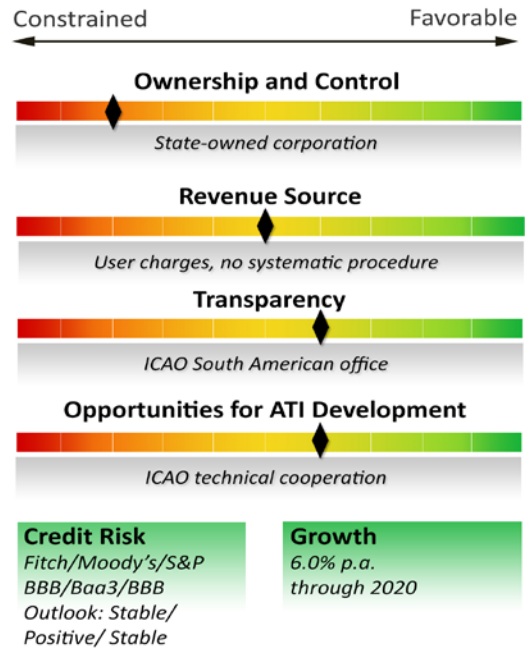
■ NEXA ASSESSMENT

Much of Peru would be inaccessible without air transport, and the sector has played an important role in facilitating the country's economic growth, which was very strong until the global recession period. For example, from 2002 to 2008 passenger numbers almost doubled, which is twice the expansion of Peru's GDP over that period. Air transport is the dominant mode of arrival for foreign visitors, accounting for over half of all arrivals. During the beginning of 2012, international air traffic visitors grew 15 percent over the same period in 2011. The increasing importance of Asian travelers underscores the importance of developing sufficient air transport infrastructure and services required to cope with increased demand.

Located near Lima, Jorge Chávez International Airport is Peru's main domestic and international airport. Peru's second most important airport has consistently been Cusco-Alejandro Velasco Astete International Airport. The government of Peru decided to privatize the Jorge Chávez International Airport, with other existing and greenfield privatizations following and to be completed.

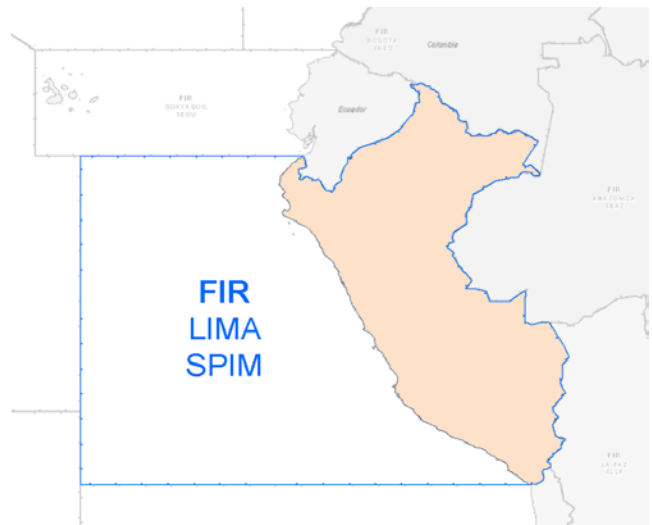
Indra recently implemented a new air traffic control center at José Chavez International Airport. GE and LAN Airlines have agreed to expand performance-based navigation procedures in Lima, in addition to RNP work completed in Cusco.

Peru is actively moving to liberalize its air traffic industry regionally. Recent Free Trade Agreements with Panama, Costa Rica, and Guatemala, as well as inclusion in the Pacific Alliance, may pave the way for increased connectivity and investment opportunities. Lima serves as ICAO's regional South American Office. In Peru, the air traffic surveillance services have been improved through a technical cooperation project with ICAO's Technical Cooperation Bureau for the acquisition and installation of eight Mode S secondary radars (covering 86 percent of Peruvian airspace), an air traffic control center and a communication system.



BACKGROUND

- Peru established independence in 1821 and is composed of 25 administration regions and one province.
- It borders Ecuador, Columbia, Brazil, Bolivia, Chile, and the Pacific Ocean.
- Peru is a constitutional republic with the capital located in Lima.
- The chief of state and head of government is President Ollanta Humala Tasso, serving since July of 2011.
- The Peruvian economy has been growing by an average of six percent per year since 2011 with a stable exchange rate and low inflation. Growth in 2010 was above eight percent and in 2011 above six percent, due partly to a leap in private investment, especially in the extractive sector, which accounts for more than 60 percent of Peru's total exports.
- Despite Peru's strong macroeconomic performance, dependence on minerals and metals exports and imported foodstuffs subjects the economy to fluctuations in world prices. Poor infrastructure hinders the spread of growth to Peru's non-coastal areas.
- Since 2006, Peru has signed trade deals with the United States, Canada, Singapore, China, Korea, and Japan, concluded negotiations with the European Free Trade Association (EFTA) and Chile, and begun trade talks with Central American countries and others.
- Although Peru has continued to attract foreign



States, Canada, Singapore, China, Korea, and Japan, concluded negotiations with the European Free Trade Association (EFTA) and Chile, and begun trade talks with Central American countries and others.

investment, political disputes and protests against foreign investors may impede development of some projects related to natural resource extraction.

BRIEF HISTORY

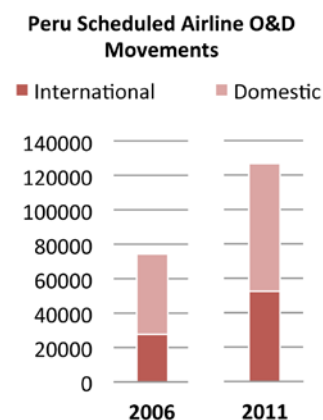
- The Peruvian Corporation was founded as a public company on June 1943 by supreme decree during the first government of Manuel Prado.
- Since 1981, CORPAC has been a government-owned corporation in charge of managing and operating the Peruvian public airport network. CORPAC is also in charge of providing air navigation services. It collects revenue from landing fees, air navigation services fees, and departure charges. Finally, the Dirección General de Transporte Aéreo (DGTA, General Directorate of Air Transport) supervises aeronautics and airport safety and develops and updates civil aviation policies.

COUNTRIES/REGIONS SERVED

Lima/UIR

AIRPORTS

Total	211
Paved Runways	58
> 10,000ft	6
8,000ft – 10,000ft	20
5,000ft to 7,999ft	15
< 4,999ft	17
Heliports	1



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Peruvian Airlines by 2011 Scheduled Seats

Lan Airlines	6,635,873
Taca Intl Airlines	1,933,906
Star Peru	1,342,358
Peruvian Airlines	765,568
Lan Peru	532,408

Top Five Foreign Airlines by 2011 Scheduled Seats

Copa Airlines	181,488
Iberia	169,982
American Airlines	148,340
LACSA	120,470
KLM-Royal Dutch Airlines	119,747

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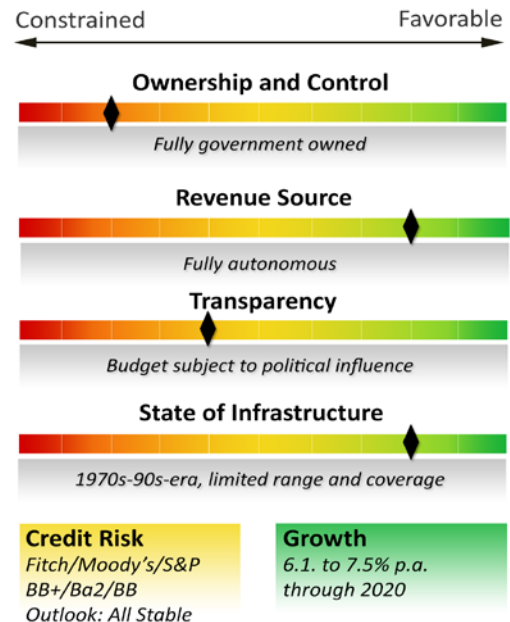
Philippines

Civil Aviation Authority of the Philippines (CAAP)

Air Traffic Service/Air Navigation Service

■ NEXA ASSESSMENT

The Philippines presents a promising but challenging ATI market. Several factors contribute to the promise. The archipelago nation is highly dependent on air transport. The CAAP has a stated commitment to develop dynamic and integrated CNS/ATM systems using satellite technology, datalink, and more flexible use of airspace by 2021. By current law, all CAAP revenues are to be used to fund operations, and the government considers recovery of long-term investment costs in setting air navigation service charges. The Asia-Pacific region is forecast to be among the fastest growing in the next decade. Numerous well-established and growing air routes include destinations in the country. Domestic air traffic growth has been steady, but international growth has been constrained by safety-related air-service sanctions imposed by the US and the European Union since 2007. International growth should increase if the country succeeds in resolving concerns and having those sanctions lifted. The outdated and inadequate state of current air traffic infrastructure (particularly in key CNS functions and ATM capabilities) presents opportunities to upgrades, training, and services, and foreign nations like Japan, France, and Korea are supporting upgrades with financing and technical expertise. The market's biggest international airlines include technology proponents like Cathay Pacific, Singapore Airlines, and Qatar Airways, and four of its top domestic-service airlines are participating in the development of a domestic, performance-based navigation network with Airbus, Quovadis, the French DGCA, and the CAAP. Lastly, the current government is actively promoting private-sector participation in infrastructure development. Challenges lie in the aforementioned safety-related sanctions, as well as full ownership by a national government that has been hampered by widespread use of corruption allegations as a political weapon. Such allegations have delayed implementation of the Philippines' major CNS/ATM upgrade initiative and threatened the appointment of key ATC and ANS officials in the CAAP. CAAP budgeting and operational decisions are not fully transparent to airlines and other key stakeholders or to the public, and the nation's sovereign debt is rated at less than investment grade.



BACKGROUND

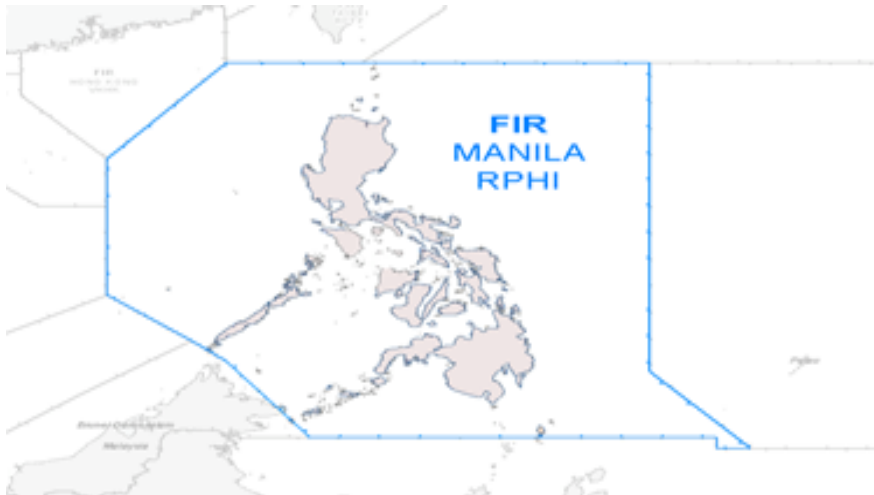
- An archipelago nation of 7,101 islands with a population of 101.8 million and economic growth that averaged 4.5 percent from 2001 through 2010.
- Its legal system is a mix of civil, common, Islamic and customary law.
- The national government has three branches: executive, legislative (bicameral), and judicial.
- President Benigno Aquino III was elected in May 2010 by popular vote to a single, six-year term and serves as both chief of state and head of the executive branch. His campaign slogan was "If there's no corruption, there would be no poverty."
- Aquino has pledged to reduce the government deficit to two percent of GDP by 2013, in part through an extensive campaign of public-private partnerships for infrastructure improvements.
- The president appoints the secretaries of the executive departments in consultation with the Commission on Appointments.
- The Director General of Civil Aviation heads the CAAP and reports to the Secretary of Transportation and Communications.

BRIEF HISTORY

- Philippine regulation of air travel dates to 1931.
- Republic Act 9497 (March 2008) created the CAAP as an independent regulatory body with quasi-judicial and quasi-legislative powers and
 - ◊ Headed by a Director of Civil Aviation.
 - ◊ Has corporate powers vested in a seven-member board.
 - ◊ Has an authorized capital stock of 50 billion pesos (\$1.23 billion in 2008), fully held by the national government.
 - ◊ Enjoys fiscal autonomy, with all moneys earned by the CAAP to be used to fund its operations.
- The US, ICAO, and the European Union have determined that the Philippines does not comply with international safety standards.

COUNTRIES/REGIONS SERVED

CAAP serves the Manila flight information region (809,967 sq NM), providing terminal, enroute, and oceanic IFR/VFR air traffic control, meteorological, and aeronautical information and publications services for commercial, general aviation, and military customers.



PERFORMANCE

Employees 1,968
ATCOs 237

FACILITIES

Towers N/A
ACC 1

AIRPORTS

Total 254
Paved Runways 85
> 10,000ft 4
8,000ft – 10,000ft 8
5,000ft to 7,999ft 29
< 4,999ft 44
Heliports 77

EQUIPMENT – ATM

- 36 ATM workstations
- 63 AIS workstations
- 2 AIS servers
- 10 TWR workstations

EQUIPMENT – COMMUNICATION

- 1 voice switching and control system
- 2 VSat hub stations
- 40 VSAT remote stations
- 2 air traffic services message handling system (AMHS) servers
- 47 AMHS workstations
- 26 enroute VHF antennae
- 32 terminal VHF antennae
- 20 microwave links

EQUIPMENT – NAVIGATION

- 18 Doppler VORs
- 11 VORs
- 26 DMEs
- 25 NDBs
- 9 ILSs
- 1 transponder landing system

EQUIPMENT – SURVEILLANCE

- 5 airport surveillance radar/ secondary surveillance radar (SSR)
- 5 enroute SSR
- 2 ADS-B ground stations

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

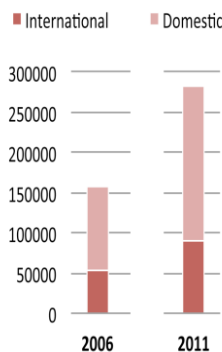
Top Five Philippines Airlines by 2011 Scheduled Seats

Cebu Pacific Air	12,765,192
Philippine Airlines	8,783,660
Airphil Express	5,376,224
Zestair	3,053,622
South East Asian Airlines	287,584

Top Five Foreign Airlines by 2011 Scheduled Seats

Cathay Pacific Airways	840,976
Asiana Airlines	382,142
Singapore Airlines	380,912
Korean Air	362,503
Qatar Airways	272,714

Philippines Scheduled Airline O&D Movements



Source: OAG Schedules Database

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Romania

Romanian Air Traffic Services Administration (ROMATSA)

■ NEXA ASSESSMENT

Romania is one of the most populated countries in Eastern Europe, with a per-capita GDP among the lowest in the transition economies of Central and Eastern Europe. However, like other eastern European countries its location gives rise to a potential for international transit traffic from Asia and the Middle East. Romania has a well-developed airport infrastructure compared to other countries in Eastern Europe, but still underdeveloped compared to Western countries standards.

ROMATSA is in the process of launching a major ATM development project, called "ATM System 2015+" to replace its current ATM system with a new capability fully compliant with the SESAR standards and European Commission regulations. The ministry has a large development project for its busiest airport, Henri Coanda International, totaling

€ 500 million from 2007-2022. Another program targets the renovation of the stationary platform for aircraft at Mihail Kogalniceanu Airport in Constanta, costing around €40 million from European SOPT program funds and scheduled for completion in 2013. Meanwhile, modernization upgrades for Suceava Airport, also financed through SOPT and the state budget, are planned for 2015.

Not surprisingly, lack of financing is the main impediment to developing stronger air sector infrastructure since air transport has not received the same policy or funding priority as other modes of transportation.

As such, an alternative to the lack of or limited access to financing through the SOPT is private investment and public-private partnerships, although Romanian legislation concerning leases for public projects is nascent and cumbersome.



BACKGROUND

- Romania obtained independence from the Ottoman empire in 1877 and was proclaimed as a republic in 1947.
- Romania shares a border with Bulgaria, Hungary, Moldova, Serbia, Ukraine and the Black Sea with a population of 21.8 million.
- It is defined as a republic with 41 counties. The capital is located in the city of Bucharest.
- The legal system is a civil law system.
- The chief of state is President Traian Basescu, serving since 2004. The head of government is Prime Minister Victor Ponta, serving since May 2012.
- Romania joined NATO in 2004 and the EU in 2007.
- Domestic consumption and investment have fueled strong GDP growth in recent years, but have led to large current account imbalances. Romania's macroeconomic gains have only recently started to spur creation of a middle class.
- Drastic austerity measures, as part of Romania's IMF-led agreement, led to a 1.3 percent GDP contraction in 2010. The economy returned to positive growth in 2011.

BRIEF HISTORY

- Romanian Air Traffic Services Administration –



ROMATSA – is a legal body, based on economic administration and financial autonomy, performing the specific functions in connection with the Air Traffic Management and it is placed under the authority of the Ministry of Transports.

- It was established by the Government Decision 74 / 1991, Amended and completed by the Government Decision 731 / 1992, 75 / 2005, 1090/2006 and 1251/2007.

- ROMATSA an autonomous, self-financed administration, structured according to the legislation of the Single European Sky.
- ROMATSA's task is to create a safe operational environment for air traffic in the Romanian airspace, using developments of the civil aviation industry and international transport.

COUNTRIES/REGIONS SERVED

București

PERFORMANCE

Employees 1,550
ATCOs 552

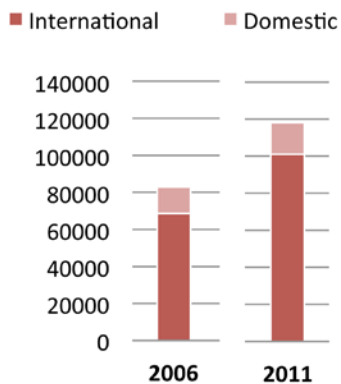
FACILITIES

Towers 16
ACC 1

AIRPORTS

Total 54
Paved Runways 26
> 10,000ft 4
8,000ft – 10,000ft 10
5,000ft to 7,999ft 11
< 4,999ft 1
Heliports 3

Romania Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Romanian Airlines by 2011 Scheduled Seats

TAROM-Romanian Air Transp 2,035,082
Blue Air Transport Aerial 687,631
Carpatair 569,130

Top Five Foreign Airlines by 2011

Scheduled Seats

Wizz Air 1,632,240
Lufthansa German Airlines 499,671
AUSTRIAN A/L AG DBA AUST 232,221
Air France 176,594
KLM-Royal Dutch Airlines 161,253

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Russia

State ATM Corporation

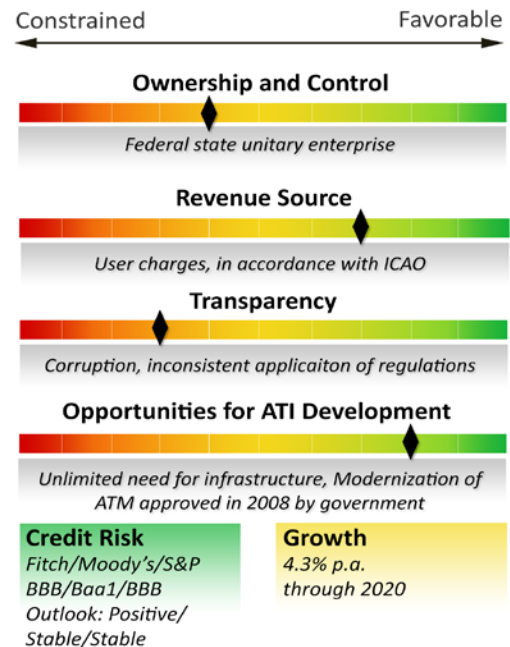
■ NEXA ASSESSMENT

Russia, contingent upon overcoming recent regional and national political and economic disruptions, is expected to have significant economic growth in the near future as one of the four major emerging economies of BRIC (Brazil-Russia-India-China) driving demand for air transportation to new levels in the largest airspace assigned to the responsibility of a single country. The vast amount of airspace, controlled by a Russian Federal State Unitary Enterprise, the State ATM Corporation, creates significant challenges to safety and efficiency and considerable opportunities for innovative development.

The State ATM Corporation is responsible for providing ANSs, covering roughly ten million sq miles and 829 routes. A Russian ATM modernization program, approved in 2008 and placed under the responsibility of the Federal Transport Agency, is aimed at achieving higher levels of safety and airspace capacity through modernization and consolidation of facilities. There are currently 69 operational ACCs constituting seven zonal centers. Objectives in the 2008 modernization program outline a reduction to 12 operational ACCs (plus one stand-alone ACC) by 2015. A system of this magnitude, supported by 435 radars, 1,966 navigation aids and 9,938 communication facilities, is too costly to operate and maintain going forward. The State ATM faces an encroaching transitional period that necessitates increased capabilities and reduced costs while ensuring a gapless transition with respect to safety.

Renovating an outdated ATC system is not cost effective, but the implementation rate of new technologies and capabilities in Russia, such as RVSM in 2011 almost a decade behind European ANSP counterparts, substantiates the use of the dilapidated system in the foreseeable future over the majority of uncongested airspace.

Aeroflot, Russia's flag carrier with sole operating rights to particular international markets, operates more than twice the seat capacity of its closest international competitor, Transaero. Domestically, Aeroflot faces greater competition for market share among a surplus of carriers, directly affecting capital intensive market strategies among the competitors to consolidate through mergers and acquisitions, leaving little funding for equipage.



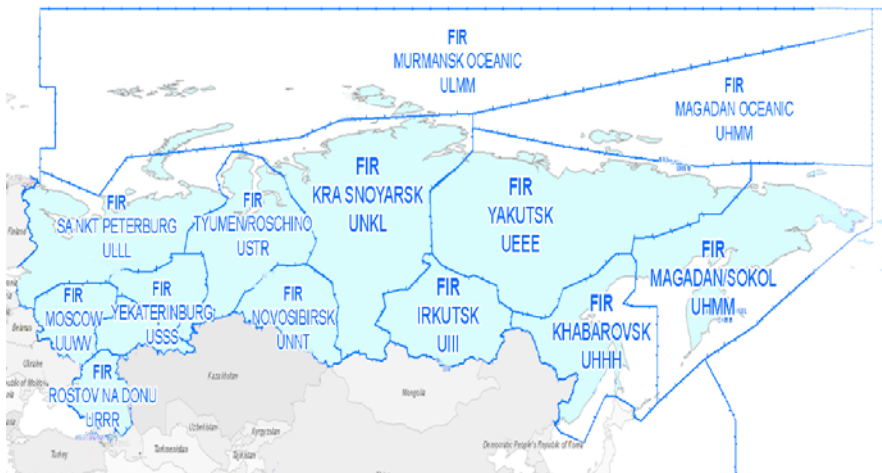
BACKGROUND

- Under Peter I (ruled 1682-1725), the principality of Muscovy, founded in the 12th century was renamed the Russian Empire. It has a population of 142.9 million (2010).
- The national government is a federation, and it consists of 3 branches: Executive— president, prime minister (chairman of the government). Legislative— Federal Assembly (Federation Council, State Duma). Judicial— Constitutional Court, Supreme Court, Supreme Court of Arbitration, Office of Procurator General.
- The global economic crisis hit Russia hard, starting with heavy capital flight in September 2008, which caused a crisis in its stock market. Several high-profile business disputes earlier in 2008, such as TNK-BP and Mechel, as well as the Georgian war, helped drive capital out of Russia. By mid-September, Russia's stock market had collapsed, as businesses sold shares to raise collateral for margin calls required by international lending institutions. As the global financial crisis gathered steam

in the fall of 2008, the accompanying steep fall in global demand, commodity prices, and tightening of credit served almost to bring Russia's economic growth to a halt in the fourth quarter of 2008, to 1.1 percent down from 9.5 percent during the same period in 2007. The Central Bank of Russia responded by pumping liquidity into Russian banks, which helped avert a banking crisis. By 2010, however, the Russian economy had begun a modest recovery, bolstered by government anti-crisis policies, the global rebound, and a rise in oil prices. Russia's leaders put renewed emphasis on promoting innovation as key to economic modernization as well as on the need to diversify the economy away from oil and gas.

BRIEF HISTORY

- The Federal State Unitary Enterprise State ATM Corporation is an ANSP of the Russian Federation responsible for airspace of more than 26 million sq kilometers over sovereign territory and the high



Aerosvit Airlines	547,964
Turkish Airlines	466,205
Air Berlin	440,808

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seas and 250 civil controlled aerodromes.

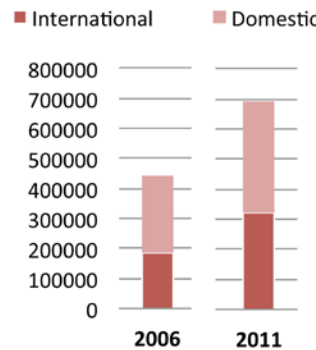
ASM/ATFM Centers 1 Main, 7 Zonal

- The total number of routes in Russian airspace is 810 with 489 international routes and four R-NAV routes. The total route length comprises 610 000 kilometers.
 - There are 441,600 kilometers of international routes.
 - In 2010, 1,109,663 flights were operated in the airspace of the Russian Federation representing an increase of 12.32 percent over 2009.
 - 69 ACCs are currently in operation and a long-term objective is to reduce their number to 13 (12 plus 1 stand-alone ACC) by 2015.
- In 2008 the Russian government approved a federal target program to modernize Russia's ATM system by 2015. Its key objective is to enhance safety and airspace capacity through modernization of the Joint ATM System, and the establishment and development of the Air Navigation System of the Russian Federation based on advanced facilities and technologies.
- The State ATM Corporation has developed and implemented the Quality Management System certified according to the ISO 9001:2000 standard.

AIRPORTS

Total	1,213
Paved Runways	593
> 10,000ft	51
8,000ft – 10,000ft	201
5,000ft to 7,999ft	126
< 4,999ft	215
Heliports	50

Russia Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Russian Airlines by 2011 Scheduled Seats

Aeroflot Russian Airlines	12,952,920
S7 Airlines	8,042,057
UTair Aviation	6,406,675
Transaero Airlines	5,154,226
Rossiya Airlines	3,668,770

Top Five Foreign Airlines by 2011 Scheduled Seats

Lufthansa German Airlines	1,028,644
Uzbekistan Airways	563,125

PERFORMANCE

ATCOs 7300

Facilities

Towers 250
 ACC 69

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Saudi Arabia

General Authority of Civil Aviation (GACA)

■ NEXA ASSESSMENT

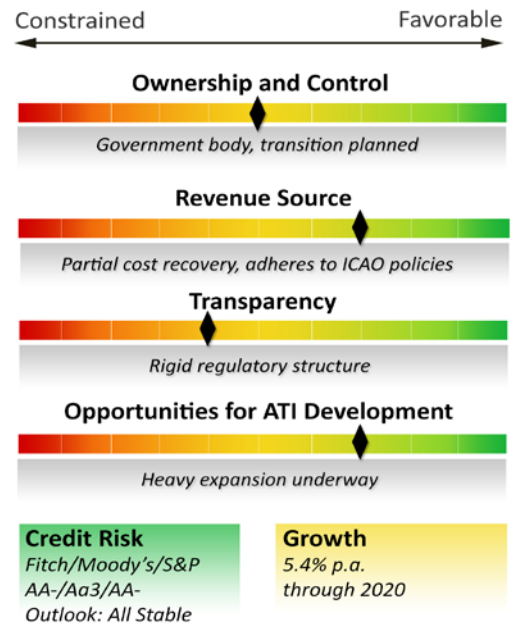
Saudi Arabian airports are the busiest in the Middle East and have KSA a 29 percent market share of air traffic in the region. The Kingdom has three international airports: King Khalid International in Riyadh, King Fahd International in Dhahran, and the King Abdulaziz International Airport (KAIA) in Jeddah, with a fourth, Prince Muhammad bin Abdulaziz Airport, in Madinah, in the planning stage.

Heavy growth is forecast, with KAIA airport envisioning a total capacity of 70 to 80 million passengers a year by 2035. Saudi Arabia plans to invest US\$53 billion (SR200 billion) into the air transport industry in the next five years, according to the General Authority of Civil Aviation (GACA).

With heavy growth expected in the region, Saudi Arabia is looking to aggressively expand its aircraft maintenance capabilities and facilities. The country also sees the industry as a major pillar of its plan to diversify its economy and add high-quality jobs. Saudi Arabia has made a special effort to expand its air transport facilities to accommodate over two million Muslim pilgrims to come to the Kingdom each year. KAIA is a center for pilgrims arriving for the hajj and has a dedicated pilgrim terminal. Plans are underway to expand the airport to include another Hajj terminal, and to build an additional runway and terminals at the Medina airport.

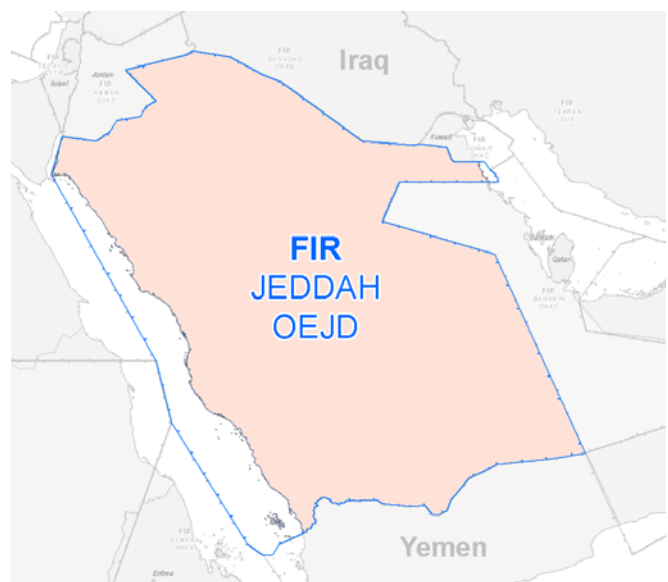
As for air traffic, the gradual opening of the local airline industry has not produced the hoped-for growth. Saudi Arabian Airlines' privatization process has moved slowly and despite losing its domestic monopoly in 2007, the airline still controls more than 90 percent of domestic traffic. Of the two LCCs launched in the country in 2007, one has failed and the other has yet to break even. Despite the billions of dollars invested in improving airport infrastructure, the domestic passenger market in the country has expanded just 11 percent in the past five years.

A rigid economic regulatory structure has been blamed for at least part of the problems, and like most airlines in the Middle East still publicly owned and controlled, a broader national agenda will continue to set aviation liberalization policy.



BACKGROUND

- Middle Eastern country with a total area of 2,149,690 sq kilometers and a population of 26.1 million people.
- Saudi Arabia is the birthplace of Islam and home to Islam's two holiest shrines in Mecca and Medina.
- Ruled by monarchy.
- The king instituted an inter-faith dialogue initiative in 2008 to encourage religious tolerance on a global level. In February 2009, he reshuffled the cabinet, which led to more moderates holding ministerial and judicial positions, and appointed the first female to the cabinet.
- King Abdallah in February and March 2011 announced a series of benefits to Saudi citizens, including funds to build affordable housing, salary increases for government workers, and unemployment benefits. The king also announced that Riyadh would begin preparations for a second round of municipal elections in September 2011.
- Governed according to Islamic law; the basic law that articulates the government's rights and responsibilities was promulgated by royal decree in 1992.
- Islamic (sharia) legal system with some elements of



Egyptian, French, and customary law; note – several

secular codes have been introduced; commercial disputes handled by special committees

- Consultative Council or Majlis al-Shura (150 members and a chairman appointed by the monarch to serve four-year terms)

BRIEF HISTORY

- The General Authority of Civil Aviation (GACA) is the authorized entity that is responsible for air transport regulations, airport operations and the provision of air navigation services in the Kingdom of Saudi Arabia. GACA is currently undergoing a major transition to become a fully independent organization operating on a commercial basis. The Council of Ministers has approved the transformation of ANS strategic business unit to an independent company with its own board of directors.
- GACA has launched major projects to upgrade its air navigation system to meet airspace users demand while maintaining the highest level of aviation safety. Two new ACCs in Riyadh and Jeddah started operation since mid-2009.
- New ATM services have been introduced in 2009 such as CPDLC, ADS-C, D-AITS and enhanced safety net functionality as part of the new ATM system. GACA/ANS is investing more than US\$300 million in upgrading the air navigation system to enhance safety and system reliability.

PERFORMANCE

Employees 1,566
ATCOs 491

FACILITIES

Towers 15
ACC 2

AIRPORTS

Total 217
Paved Runways 81
> 10,000ft 33
8,000ft – 10,000ft 15
5,000ft to 7,999ft 27
< 4,999ft 6
International 7

Domestic
Heliports

15
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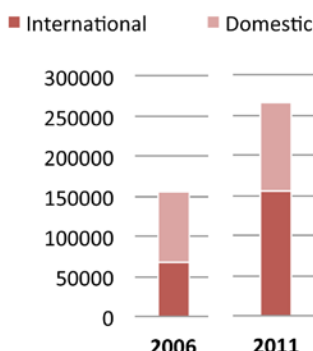
PRINCIPAL DIRECTORS

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Name: H.H. Prince Turki ibn Faisal Al-Saud
Title: Vice President, International Bodies
Name: Eng. Mohammad Al-salmi
Title: Vice President, Air Navigation Services
Name: Eng. Mohammad Aljedaibi
Title: Vice President, Domestic Airports
Name: Dr. Yousef A. Basodan
Title: Vice President, Finance and Administrations

ANSP CONTACT INFO

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Saudi Arabia Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Saudi Arabian Airlines by 2011 Scheduled Seats

Saudi Arabian Airlines 19,329,700
National Air Services-NAS 1,808,271

Top Five Foreign Airlines by 2011 Scheduled Seats

Egyptair 1,288,643
Emirates Airlines 767,903
Pakistan Intl Airlines 568,229
Air India 526,376
Gulf Air 490,771

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COUNTRY EMBASSY IN THE US

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Fax: (202) 944-3113

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Minister Responsible for Civil Aviation

Name: H.H. Prince Fahad Al-Abdullah Al-Saud
Title: Assistant to Minister of Defence and Aviation
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- ◊ Political control of all commercial aviation matters.
- ◊ Promotion of commercial aviation.
- ◊ Negotiation of international agreements in the framework of authorizations and special mandates conferred by the government.
- ◊ Development of commercial aviation technical regulations conforming to ICAO norms.
- ◊ Development and implementation of national regulations as well as international agreements signed and ratified by Senegal.
- ◊ Supervision of commercial aviation safety and security.
- ◊ Management of aviation accords signed by Senegal.
- ◊ Coordination and supervision of all aviation activities and monitoring of the activities of regional and international organizations operating in the commercial aviation domain.
- ◊ Monitoring the management of government financial resources affected by commercial aviation.
- ◊ Monitoring of government commitments in all civil aviation matters.

- The Council of Civil Aviation approves the activities, budget, financial records, manuals, and procedures of ANACS. It is composed of 12 members. The members and the president are recommended by the Minister of Civil Aviation; the president is appointed by the president of Senegal, and the members by the prime minister. The members represent the presidency as well as ministers whose activities are related to commercial aviation, such as defense, the interior, tourism, finance, etc. The council meets at least twice a year, having been called into session by the president.

- The goal of ANAC and the council is to transform Leopold Sedar Senghor International Airport into a global hub by improving its security, capacity, and convenience.

AIRPORTS

Total	20
Paved Runways > 10,000ft	9
8,000ft – 10,000ft	2
5,000ft to 7,999ft	6
< 4,999ft	1
	0

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Senegalese Airlines by 2011 Scheduled Seats

SENEGAL AIRLINES	217,326
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Top Five Foreign Airlines by 2011 Scheduled Seats

South African Airways	225,458
Royal Air Maroc	149,693
Air France	111,500
Brussels Airlines	85,000
Iberia	73,000

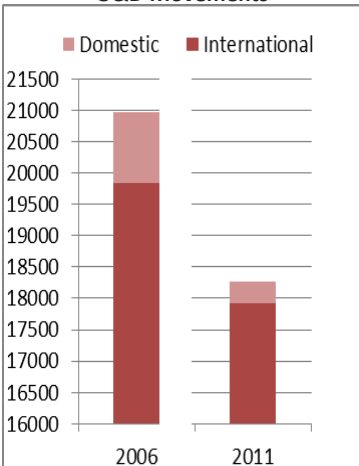
US EMBASSY IN THE COUNTRY

Ambassador: Lewis Lukens
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 Phone: (221) 33-829-2100
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COUNTRY EMBASSY IN THE US

Ambassador: Fatou Danielle Diagne
 2031 Florida Avenue NW, Washington,

Senegal Scheduled Airline O&D Movements



Source: OAG Schedules Database

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PRINCIPAL DIRECTORS

Name: Monsieur Amadou Bachir Mbodj
 Title: Directeur de la Division de la Navigation Aérienne et des Aérodrômes (DNAA)
 Name: Monsieur René Tavarez
 Title: Directeur du Contrôle de la Sécurité (DCS)
 Name: Madame Fatimata Wopa Gaye
 Title: Directeur Administratif et Financier (DAF)

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Singapore

Civil Aviation Authority of Singapore (CAAS)

■ NEXA ASSESSMENT

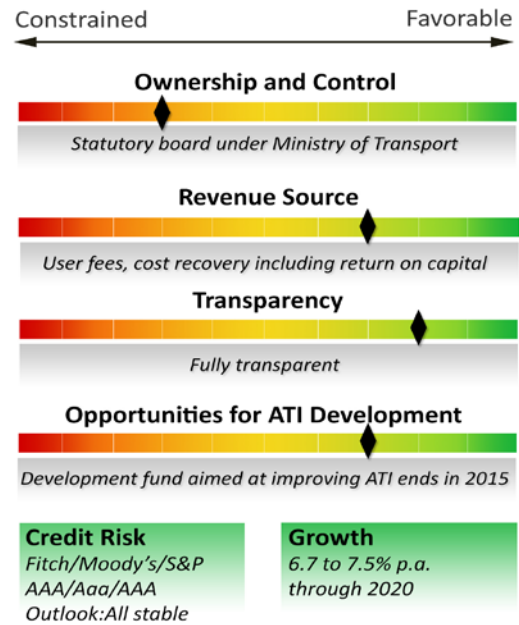
Singapore’s highly developed and free market economy, liberal air transport policies, and geographic location at the crossroads of the East and West support a thriving aerospace industry. Singapore is recognized as the world’s easiest place to do business and has the second-most transparent government in the world. As a country with few natural resources, Singapore was built around international business opportunities, becoming a world leading financial center.

Singapore’s ANSP, the Civil Aviation Authority of Singapore, a statutory board under the Ministry of Transport, is experiencing the effects from a sharp increase of air transport traffic in the region. With traffic levels in the region projected to grow at 6.7 percent annually, CAAS restructured its ANS division in 2011, increasing the focus on daily operations and future ANS capabilities to meet operational challenges of the future. Aiming to build and grow the competitiveness of the aviation industry in Singapore, the CAAS launched an Aviation Development Fund in 2010, with US\$100 million set aside over the next five years to accelerate industry development.

The ASEAN Transport Ministers recently endorsed the recommendation to launch the ASEAN Single Aviation Market (ASAM) Implementation Framework. ASAM focuses on implementing open sky policies for the ASEAN countries, each with a strong global aviation presence, in order to reap benefits from a more unified or single aviation market. Unified regional policies will further enhance Singapore’s status as an aviation and aerospace hub, with a CAGR of 13 percent over the past decade, advancing the development of civil aviation around the globe.

Singapore’s flag carrier, Singapore Airlines, and main international hub, Changi Airport, are iconic industry leaders, spurring innovation and raising the bar for excellence. Singapore Airlines, revered as a premier airline, was the first commercial airline to fly the Airbus A380. Changia Airport has won Business Traveler’s “Best Airport in the World” award annually since 1988.

Singapore staunchly supports ICAO’s initiatives, contributing resources, and expertise as well as its vision for safety, security, environmental protection and sustainability to the international aviation community. Singapore and the CAAS will continue to make contributions promoting the development of aviation and globalization of air transport services.



BACKGROUND

- Singapore obtained independence in 1965 from the Malaysian Federation.
- An island nation located on the southern tip of Malaysia with a population of 5.3 million.
- Singapore is defined as a parliamentary republic with the capital located in the city of Singapore.
- The legal system is an English common law system.
- The chief of state is President Tony Tan Keng Yam, serving since September 2011. The head of government is Prime Minister Lee Hsien Loong, serving since 2004.
- Singapore is one of the world’s most prosperous countries with strong international trading links (its port is one of the world’s busiest in terms of tonnage handled) and with per capita GDP equal to that of the leading nations of Western Europe.
- It has a highly developed and successful free-market economy. It enjoys a remarkably open and corruption-free environment, stable prices, and a per capita GDP higher than that of most developed countries.



- The economy depends heavily on exports, particularly in consumer electronics, information technology products, pharmaceuticals, and a growing financial

services sector.

- Singapore has attracted major investments in pharmaceuticals and medical technology production and will continue efforts to establish itself as Southeast Asia's financial and high-tech hub.

BRIEF HISTORY

- The Civil Aviation Authority of Singapore (CAAS) is a statutory board under the Ministry of Transport. It provides air navigation services in the Singapore Flight Information Region and the award-winning Changi Airport. It represents the government of Singapore in the negotiation of air services agreements as well as advises on matters related to civil aviation. The organization regulates and spearheads the development of civil aviation and plays a key role in making Singapore a global air hub.

COUNTRIES/REGIONS SERVED

Singapore

PERFORMANCE

Employees 791
ATCOs 262

FACILITIES

Towers 2
ACC 1

AIRPORTS

Total 8
Paved Runways 8
> 10,000ft 2
8,000ft – 10,000ft 1
5,000ft to 7,999ft 4
< 4,999ft 1

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Singapore Airlines by 2011 Scheduled Seats

Singapore Airlines 10,442,099
Tiger Airways 2,242,620
SilkAir 1,963,508
Jetstar Asia 1,475,081
Valuair 318,060

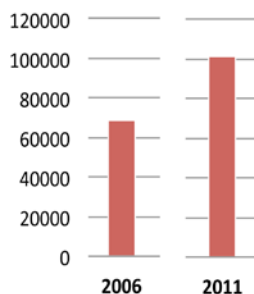
Top Five Foreign Airlines by 2011 Scheduled Seats

Qantas Airways 1,315,495

AirAsia 1,116,540
Cathay Pacific Airways 1,067,464
Indonesia AirAsia 717,673
Emirates Airlines 662,650

Singapore Scheduled Airline O&D Movements

■ International
Note: All COUNTRY NAME movements are international.



Source: OAG Schedules Database

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COUNTRY EMBASSY IN THE US

Ambassador: Chan Heng Chee
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Title: Representative of Singapore

on the Council of ICAO/
Director (ICAO Affairs)
Name: Mr. Tay Tiang Guan
Title: Deputy Director-General of
Civil Aviation

Name: Mr. Soh Poh Theen
Title: Assistant Director-General (Air
Navigation Services)

Name: Dr. Jarnail Singh
Title: Chairman, Civil Aviation
Medical Board

Name: Ms. Tan Siew Huay
Title: Director (Legal)

Name: Ms. Eileen Poh
Title: Director (International
Relations)

Name: Mr. Pok Cheng Chong
Title: Director (Singapore Aviation
Academy)

Name: Mr. Kuah Kong Beng
Title: Director (Air Traffic services)

ANSP CONTACT INFO

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South Africa

Air Traffic and Navigation Services (ATNS)

South African Department of Transport/Civil Aviation Authority

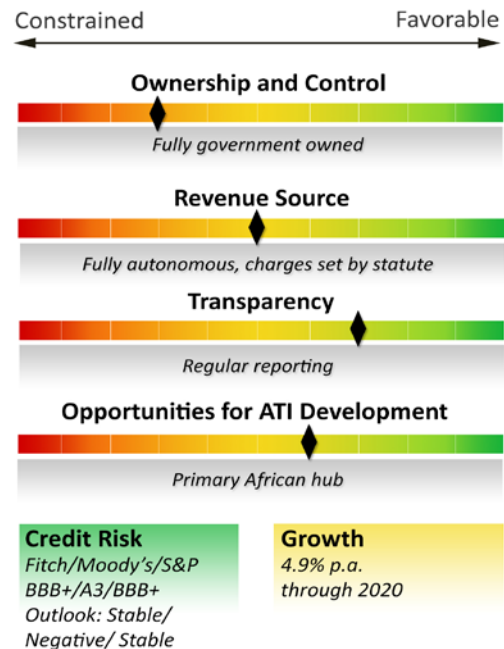
■ NEXA ASSESSMENT

South Africa has a modern and well developed transport infrastructure. Its air network is the largest on the continent with a population that has the highest propensity to fly in Africa. As such, about half of passenger traffic uses the system for domestic travel. The country's flag carrier, South African Airways, has an extensive network to most South African cities and operates a wide range of international flights to/from North America, South America, Europe, Asia and Australia.

Air Traffic and Navigation Services (ATNS) is responsible for air traffic control in approximately ten percent of the world's airspace. The ten airports are run by Airports Company South Africa (ACSA), and handle over 98 percent of the country's commercial air traffic. They comprise major international airports in Johannesburg, Cape Town and Durban, as well as airports in Bloemfontein, Port Elizabeth, East London, George, Kimberly, Pilansberg, and Upington.

South Africa charges relatively large fees for airport and airspace users, with more increases and taxes slated for the future. ACSA invested about US\$2.5 billion (R20-billion) in South Africa's airports in the run-up to the 2010 World Cup, with major upgrades to Johannesburg's or Tambo International Airport and Cape Town International Airport. Additional improvements to the three international airports could generate tens of millions of dollars in export potential for aerospace companies for equipment such as guidance control, weather observation, and airfield lighting systems.

With relatively strong financials and banking markets, private investment faces a good business environment in South Africa. Durban Airport (DUBE), a US\$950 million greenfield project, is often considered one of the more successful PPP aviation experiences in Africa. In sub-Saharan Africa, only South Africa, Nigeria and Kenya have sufficient banking capacity to fund major projects such as air transport infrastructure, so international debt funding is likely to continue to be required.

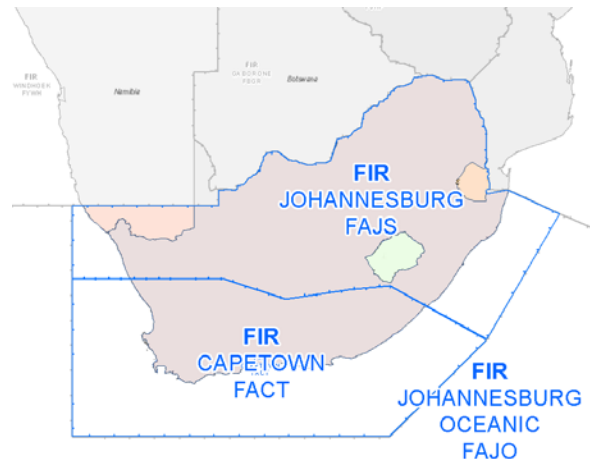


BACKGROUND

- Members of the Khoisan language groups are the oldest surviving inhabitants of the land, but only a few are left in South Africa today— and they are located in the western sections.
- South Africa has a population of 50.59 million.
- The national government is a parliamentary democracy which consists of an executive branch— president (chief of state) elected to a five-year term by the National Assembly, legislative branch— bicameral Parliament consisting of 490 members in two chambers. National Assembly (400 members) elected by a system of proportional representation. National Council of Provinces consisting of 90 delegates (10 from each province) and ten nonvoting delegates representing local government and a judicial branch— Constitutional Court interprets and decides constitutional issues; Supreme Court of Appeal is the highest court for interpreting and deciding non constitutional matters.

BRIEF HISTORY

- ATNS, the Air Traffic and Navigation Services Company of South Africa, is the sole provider of air traffic, navigation, training and associated services within



South Africa. Responsible for 10 percent of the world's airspace, ATNS safely manages more than a million arrival and departure movements per year while maintaining ISO 9001:2000 accreditation.

- ATNS is a state owned enterprise as a limited liability company. The government of South Africa, through the Minister of Transport, is the sole shareholder. ATNS

is regulated by the SACAA as mandated under the Aviation Act and associated regulations and technical standards. The Airports Company Act of 1993, subjects the company to independent economic regulation in the form of the Regulating Committee.

- One other notable statutory restriction on ATNS sources of revenue is reflected in a provision of the ATNS Act, which prohibits ATNS from having any financial interest, direct or indirect, in the provision of any air service. Essentially, "air service" is defined in the foregoing enactments, subject to a few exceptions, as "any service operated by means of an aircraft for reward." Thus, ATNS is, by law, restrained from having any financial interest whatsoever in the commercial airline business. Apparently, this provision is intended to forestall any corporate cohesion between ATNS and any of its airline customers, and the possible discrimination against other users of its services that may be associated therewith.
- Further, although ATNS has unrestricted power to borrow money from any source in order to achieve its objects or to perform its functions, there are no provisions in the ATNS Act relating to the use of its assets as security or guarantee for the repayment of loans. There is also no indication from the ATNS Act as to whether the government of South Africa, as shareholder, is required to guarantee loans contracted by ATNS, whether such loans are required to fund operations or infrastructure investment. Indeed, the government does not provide sovereign guarantees for the loans or other liabilities of ATNS. ATNS raises capital on the open market on a commercial basis based on its balance sheet and ability to service debt instruments.

COUNTRIES/REGIONS SERVED

Republic of South Africa
FIRs
 Capetown, Johannesburg,
 Johannesburg Oceanic (extending to 90

deg. South Latitude)

PERFORMANCE

Employees 846
 ATCOs 472

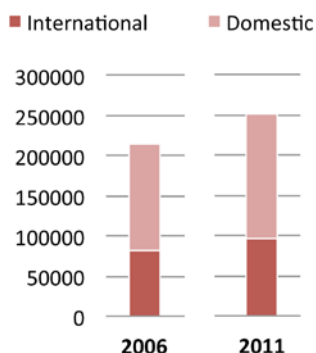
FACILITIES

Towers 21
 ACC 2

AIRPORTS

Total 578
 Paved Runways 147
 > 10,000ft 11
 8,000ft – 10,000ft 6
 5,000ft to 7,999ft 53
 < 4,999ft 77
 Heliports 2

South Africa Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five South African Airlines by 2011 Scheduled Seats

South African Airways 10,405,351
 Comair 35,042,781
 Time 2,380,748
 Mango 2,020,146
 Velvet Sky 228,470

Top Five Foreign Airlines by 2011 Scheduled Seats

British Airways 3,217,834
 Emirates Airlines 663,179
 Air Namibia 246,434
 Lufthansa German Airlines 242,856
 KLM-Royal Dutch Airlines 221,706

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 General: Civil Aviation

Name: Mr. Thami Ngidi
 Title: Chief Director: Aviation
 Economics and Industry
 Development

Name: Mr. Tshepo Peege
 Title: Chief Director: Aviation Safety,
 Security, Environment and
 Search & Rescue

Name: Ms. Tshitshi Phewa
 Title: Director: Aviation Industry
 Development and Freight
 Logistics

Name: Mr. Vuwani Ndwamato
 Title: Director: Air Transport

Name: Mr. Johann Bierman
 Title: Director: Airports and
 Airspace

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Spain and the Canary Islands

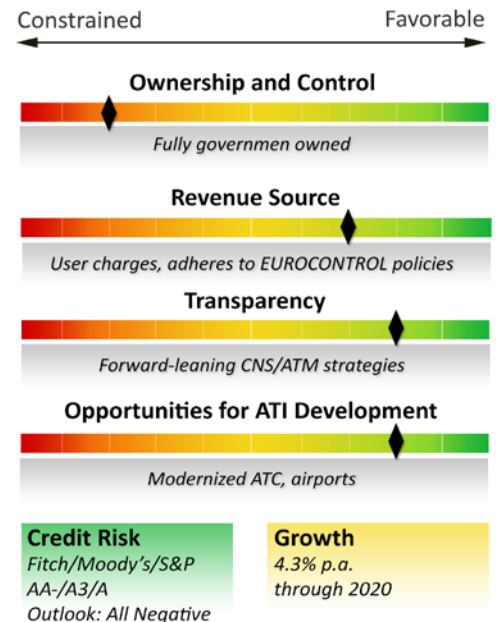
Entidad Pública Aeropuertos Españoles y Navegación Aérea (AENA)

■ NEXA ASSESSMENT

Spain's airspace, which covers mainland Spain, the Balearic and Canary Islands, is one of the fastest growing in Europe. Recent forecasts by European aircraft manufacturer Airbus (Global Market Forecast 2011-2030) suggest air traffic in Spain will almost double by 2030. Air transport in the country is managed by Spanish Airports and Air Navigation (AENA) Public Authority, headquartered in Madrid. Spanish airspace is divided into three FIRs: Madrid, Barcelona, and Canary Islands. Due to their location, the Canary Islands must be crossed by all transit circulating between Europe and South America, as well as part of the traffic going to the Caribbean and Central America.

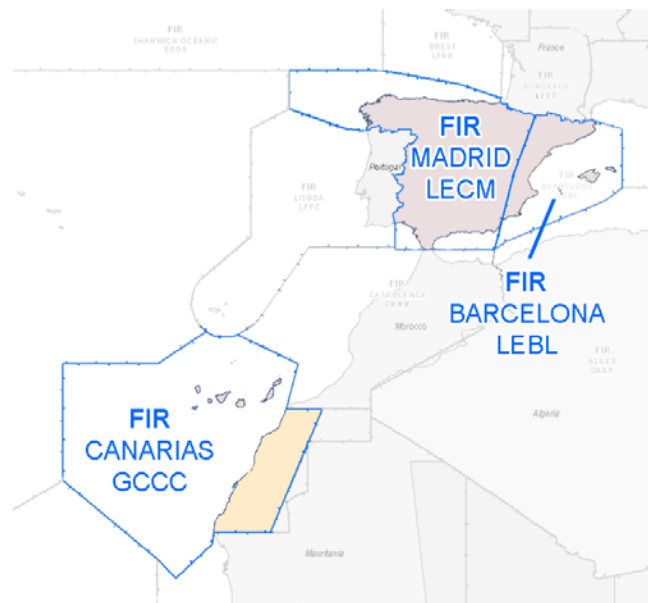
AENA's proprietary ATC system is called SACTA and was developed by Indra. In addition, AENA has selected SITA to upgrade its air-to-ground radio network to meet the requirements of European regulations on the implementation of datalink services. The agreement covers the upgrade of 27 VHF ground stations, which AENA acquired from SITA in 2002, and the deployment of 11 new stations. It also includes the delivery of an independent VDLm2 frequency, and an ATN infrastructure monitoring platform from Altys Technologies.

Spain faces considerable uncertainty given recent struggles of the European economic zone. As a result, the air traffic system has faced labor and funding obstacles within the last year. The government recently suspended plans to privatize its two main airports on the grounds that it could not receive adequate value for the assets as Europe's sovereign-debt crisis continues to upset financial markets. With its austerity package, economists expect spending cuts and tax increases to weigh heavily on the country's economic future.



BACKGROUND

- Spain's powerful world empire of the 16th and 17th centuries ultimately yielded command of the seas to England. Subsequent failure to embrace the mercantile and industrial revolutions caused the country to fall behind Britain, France, and Germany in economic and political power. Spain remained neutral in World Wars I and II but suffered through a devastating civil war (1936-39). A peaceful transition to democracy following the death of dictator Francisco Franco in 1975, and rapid economic modernization (Spain joined the EU in 1986) gave Spain a dynamic and rapidly growing economy and made it a global champion of freedom and human rights. The government's major focus for the immediate future will be on measures to reverse the severe economic recession that started in mid-2008.
- Population (National Institute of Statistics (INE), January 2011): 47,190,493.
- Spain is a constitutional monarchy (Juan Carlos I proclaimed King November 1975).
- It has the seventh-largest economy in the Organization for Economic Cooperation and Development (OECD).
- Spain's accession to the European Community – now European Union (EU) – in January 1986 required the country to open its economy to trade and investment, modernize its industrial base, improve infrastructure, and revise economic legislation to conform to EU guidelines.



- These measures helped the economy grow rapidly over the next two decades. Unemployment fell from 23 percent in 1986 to a low point of eight percent in mid-2007. The adoption of the euro in 2002 greatly reduced interest rates, spurring a housing boom that further fueled growth. The strong euro also encouraged Spanish firms to invest in the United States, where

several Spanish firms have significant investments in banking, insurance, wind and solar power, biofuels, road construction, food, and other sectors. The end of the housing boom in 2007 and the international financial crisis led to a recession that began in the second quarter of 2008. Housing sales and construction declined dramatically, and the unemployment rate reached almost 23 percent by the end of 2011.

BRIEF HISTORY

- AENA is a public business entity entrusted with planning, developing, building, equipping, operating, and managing Spanish civil airports and the air navigation system covering airspace under Spanish responsibility. AENA integrates all Spanish civil aeronautical infrastructure activities in one single organisation staffed by qualified professionals.
- As the fourth largest provider of air navigation services in Europe, it plays a leading, active role in all European Union projects relating to the introduction of the Single European Sky.
- The functions of air navigation are:
 - ◊ Planning, management, coordination, operating, preservation and administration of air traffic, telecommunications services and aeronautical information as well as infrastructures, facilities and communications networks for the air navigation system. All of this with the aim of ensuring aircraft moving around Spanish airspace obtain the utmost security, fluidity, efficiency and punctuality.
 - ◊ Preparation and approval of various types of projects, as well as the implementation and management of investment control.
 - ◊ Evaluation of the needs and proposals for new infrastructures, as well as possible modifications to airspace planning.
 - ◊ Participation in specific aeronautical training and subject

to the awarding of official licences.

PERFORMANCE

Employees	4,178
ATCOs	2,005

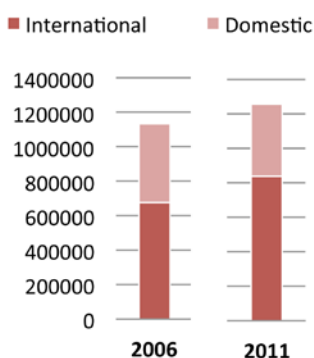
FACILITIES

Towers	38
ACC	5

AIRPORTS

Total	154
Paved Runways > 10,000ft	97
8,000ft – 10,000ft	18
5,000ft to 7,999ft	13
< 4,999ft	18
Heliports	48
	9

Spain Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Spanish Airlines by 2011

Scheduled Seats

Iberia	24,111,561
Vueling Airlines	12,664,080
Air Europa	8,506,647
Spanair	8,030,533
Binter Canarias	3,815,424

Top Five Foreign Airlines by 2011

Scheduled Seats

Ryanair	21,882,042
easyJet	7,442,027
Air Berlin	5,432,067
NIKI	2,565,214
Thomson Airways	2,331,352

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PRINCIPAL DIRECTORS

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Title: Subdirector General de Transporte Aéreo
Name: Jesús PÉREZ BLANCO
Title: Subdirector General de Aeropuertos y Navegación Aérea

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Switzerland

Skyguide

■ NEXA ASSESSMENT

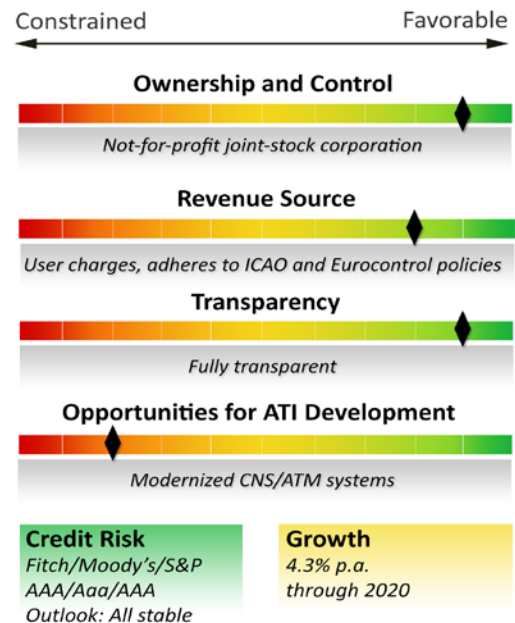
Swiss airspace lies in the heart of European air traffic, presenting ATI opportunities founded on high-density and complex airspace. Skyguide, officially changing from Swisscontrol in 2001 with expanded responsibility for military ATC, is a non-profit, public limited company with 99.85 percent ownership by Switzerland's government.

EUROCONTROL's efforts to defragment central Europe's airspace creates a favorable position for opportunities for Skyguide, which controls just under 55 percent of total flight kilometers in Swiss airspace, while some 45 percent are in foreign airspace delegated to its control by neighboring countries. While a multinational initiative to consolidate resources could lead to expansion of Switzerland's ATC responsibilities, omnipresent red tape and bureaucratic delays could inhibit the speed and extent of Switzerland's role in central Europe. Switzerland is a small organization among a group of large countries undergoing consolidation. Experience with ATC in foreign airspace and a central location will play a critical role in Skyguide's business strategies.

Multinational organization bureaucracy aside, Skyguide's financial autonomy from government, as well as full access to capital markets, and a consortium of additional ATM services, including AIM, Training, FIS, and a slew of ATM custom solutions, positions Skyguide as strong business unit capable of influencing the direction of ATM and quickly adapting to any market changes.

Switzerland's mountainous terrain limits the effectiveness of traditional SSR, ideal conditions for implementation of new technologies, with the first approach procedures to use EGNOS and GPS approved in 2011. CHIPS, an innovation platform for Swiss aviation, provides a roadmap to enhance services for en-route, terminal operations and approaches through a harmonized and coordinated implementation of new and modern procedures, technologies, and methods.

The strength of the Swiss franc relative to the euro will remain a major challenge for Skyguide, which earns a large portion of revenues in the weaker euro. This artificial inflation, resulting from the European debt crisis, damages Skyguide's ability to compete in a European context and increases exposure exchange-rate risks. While the exchange rate may have a detrimental impact on foreign carriers' costs, the weak euro will have no adverse effects on Switzerland's domestic aviation and creates travel appeal to European destinations. 2011 marked a milestone for Skyguide in terms of revenue, receiving its first-ever compensation for services provided to regional airports, due to a 2009 constitutional amendment on a mineral oil tax fund, and neighboring foreign airspace delegated to Skyguide's control.



BACKGROUND

- Switzerland is a landlocked country in central Europe with a population of 7.6 million.
- Its sovereignty and neutrality are recognized and honored throughout the world.
- Formally a confederation, but Switzerland is now similar in structure to a federal republic with 26 cantons retaining a degree of self-government.
- Its legal system is a civil law system with judicial review of legislative acts.
- Switzerland is a peaceful, prosperous, and modern market economy with low unemployment, a highly skilled labor force, and a per capita GDP among the highest in the world.
- The economy benefits from a highly developed service sector, led by financial services, and a manufacturing



industry that specializes in high-technology, knowledge-

based production.

- The fate of the Swiss economy is tightly linked to that of its neighbors in the euro zone, which purchases half of all Swiss exports.
- The global financial crisis of 2008 and resulting economic downturn in 2009 stalled export demand and put Switzerland in a recession. The Swiss National Bank (SNB) during this period effectively implemented a zero-interest rate policy to boost the economy as well as prevent appreciation of the franc, and Switzerland's economy recovered in 2010 with 2.7 percent growth.

BRIEF HISTORY

- Unique in Europe, Swiss military and civil air navigation services merge into a single authority responsible for the management of all of Switzerland's skies; Skyguide was created in 2001.
- Skyguide is an advanced high-performance provider of air navigation services in the heart of Europe.
- The company currently has fourteen operating locations in Switzerland and a workforce of some 1,300 employees. Its administrative head office is in Geneva.
- The company is a center for aeronautical information management (AIM), radar and communications technology and data processing for the aviation sector.
- Skyguide holds ISO 9001:2000 certification for all its units throughout its organization. And its integration of civil and military air navigation services under a single organizational roof is a pioneering achievement through which the company has demonstrated the many benefits that flexible airspace management can offer in terms of increasing overall airspace capacity.
- Skyguide is a member, together with its partner organizations in Belgium, France, Germany, Luxembourg and the Netherlands, of the FABEC initiative to create a common functional airspace

block that will bring greater efficiency to Central Europe's air traffic management services and activities.

- Skyguide is responsible for most Swiss airspace which corresponds to the national land and water borders. The area of responsibility also includes adjacent airspace in France, Germany, Italy and Austria.

COUNTRIES/REGIONS SERVED

FIRs Switzerland

PERFORMANCE

Employees 1,309
ATCOs 515

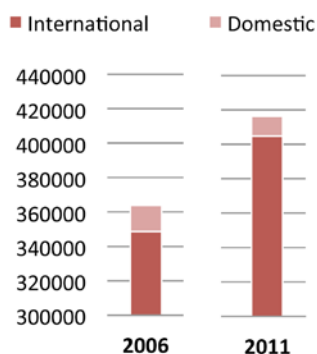
FACILITIES

Towers 14
ACC 2

AIRPORTS

Total 65
Paved Runways 42
> 10,000ft 3
8,000ft – 10,000ft 3
5,000ft to 7,999ft 14
< 4,999ft 22
Heliports 1

Switzerland Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Swiss Airlines by 2011 Scheduled Seats

SWISS 11,011,249
easyJet 4,496,431
Darwin Airline 261,903
Belair Airlines 154,382

Top Five Foreign Airlines by 2011 Scheduled Seats

Lufthansa German Airlines 1,758,794
Air Berlin 1,308,222
British Airways 986,866
Air France 948,596
KLM-Royal Dutch Airlines 543,177

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Tanzania

Tanzania Civil Aviation Authority (TCAA)

■ NEXA ASSESSMENT

Tanzania's economy is anticipated to grow at about 6.8 percent in 2011 and about 7.2 percent in 2012, while the country's aviation industry is expected to grow at about 7.9 percent in the near-term. Government projections detail a projected increase of air passengers from 2,265,658 in 2010/2011 to 2,492,224 passengers in 2011/2012 due to growth of business activities and tourism. These provide a solid foundation for the building up of Tanzania's air transport system using the right mix of infrastructure, human resources and, essentially, commitment.

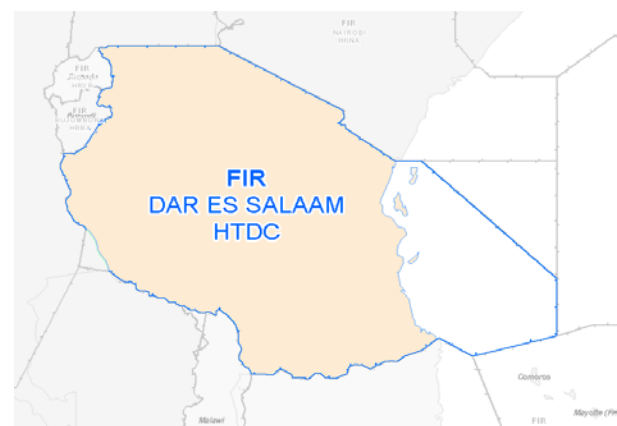
Tanzania's aviation industry benefits from a resurgence in tourism within the East Africa region, although increasing security concerns resulting from terrorism threats continue to spread, threatening the country's greatest revenue generator. There have been efforts to enhance the effectiveness of several modes of transport culminating in an efficiently integrated transport system, including air, rail, road and seaways; however, the country is too strategic to continue with its current state of aviation infrastructure. The government tacitly supports liberalization of its air transport industry, which would facilitate market access, yet continues to search for investment in its moribund state-owned airline, Air Tanzania, while more efficient carriers struggle for support. The government is working towards the development of the Civil Aviation Master Plan, which will log current and future requirements over the next 25 years. However, rehabilitation of aerodromes, construction of new airfields, and ATC infrastructure have been slow in coming and have hindered expansion of local airlines such as Flight540 and Precision Air.

The single radar station in the country in Dar es Salaam will soon be supplemented with new radar equipment to be installed in Mwanza, the country's lakeside municipality on Lake Victoria, which is expected to be followed by six more such stations across the country to improve air traffic monitoring and gathering of weather data. The World Bank is currently involved in runway resurfacing projects, and the next step will be to raise the capital resources via private investors under public private partnerships.



BACKGROUND

- Shortly after achieving independence from Britain in 1961, Tanganyika and Zanzibar merged to form the nation of Tanzania in 1964.
- Tanzania is a republic with three branches: executive—president (chief of state and commander in chief), vice president, and prime minister. Legislative—unicameral National Assembly (for the Union), House of Representatives (for Zanzibar only). Judicial—Mainland: Court of Appeals, High Courts, Resident Magistrate Courts, district courts, and primary courts; Zanzibar: High Court, people's district courts, kadhis court (Islamic courts).
- After independence, Tanzania adopted socialist economic policies, resulting in severe economic decline. The state controlled the economy and owned all of the major enterprises. The exchange rate and pricing policies were based on non-market mechanisms, creating low export and real GDP growth, high inflation, and widespread shortages. Agricultural production, the mainstay of the economy, declined steadily.
- Since 1996, Tanzania has taken aggressive steps toward



macroeconomic stabilization and structural reforms. The emergence of a strong Ministry of Finance, supported by the International Monetary Fund (IMF) and other development partners, was instrumental in accelerating fiscal reforms and fostering a turnaround in fiscal performance. Overall, real GDP growth has averaged about six percent a year over the past seven

years, which was higher than the annual average growth of less than five percent in the late 1990s. Total debt service payments for 2010 were US\$85 million. The IMF's most recent Debt Sustainability Analysis indicates that debt relief under the Heavily Indebted Poor Countries (HIPC) Initiative combined with sound macroeconomic policies place it at low risk of debt distress. Public external debt service was approximately one percent of GDP in 2009 and expected to remain so for 2010 and 2011.

BRIEF HISTORY

- The Tanzania Civil Aviation Authority (the Authority) was established on November 2003 as a corporate body, pursuant to the Civil Aviation Act, Cap. 80 (R.E. 2006). The Act mandates the Authority to provide safety, security and economic oversight of the civil aviation industry in Tanzania. The regulated services fall in three categories: air transport services, aeronautical airport services (airside airport operations, ground handling, in-flight catering and aviation fuelling) and air navigation services (including air traffic services, communications, search and rescue, and aeronautical information Services). The TCAA is in the midst of its second five-year strategic plan, which took effect July 2009 and extends through mid-2014. The first plan focuses on building the institutional infrastructure and requisite tools for carrying out the authority's regulatory and service provision roles; the current plan aims to consolidate achievements and steer the Authority into a more effective and efficient organization by benchmarking its services against best practices. The five-year plan is reviewed annually. During this period, the mandate for safety and security oversight requirements will evolve with industry growth, changing technologies and procedures including PBN (performance

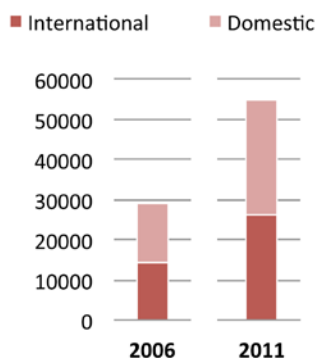
based navigation), ADS-B, GNSS, and RVSM. Training and retention of qualified personnel will be given high priority for capacity and capability building to satisfy demand.

- Tanzania has abundant tourist attractions. This fact, coupled with the country's strategic geographic location, gives the country a big potential for the development of an air transport hub. However, to facilitate this potential, the country needs strong national airlines and adequate airport and air navigation infrastructure. This is a challenge to both the public and private sectors.
- There is an urgent need to prepare a civil aviation master plan which will take on board the industry's needs for at least the next 25 years. It is expected that this master plan will be prepared during the beginning of these five years and will guide the execution of the plan during the latter phase.

AIRPORTS

Total	124
Paved Runways	9
> 10,000ft	2
8,000ft – 10,000ft	2
5,000ft to 7,999ft	4
< 4,999ft	1

Tanzania Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Tanzanian Airlines by 2011 Scheduled Seats

Precisionair	1,231,111
Air Tanzania	170,100

Top Five Foreign Airlines by 2011 Scheduled Seats

Five Forty Aviation	257,008
Ethiopian Airlines	130,966
KLM-Royal Dutch Airlines	112,044
Kenya Airways	102,448
Emirates Airlines	94,149

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Thailand

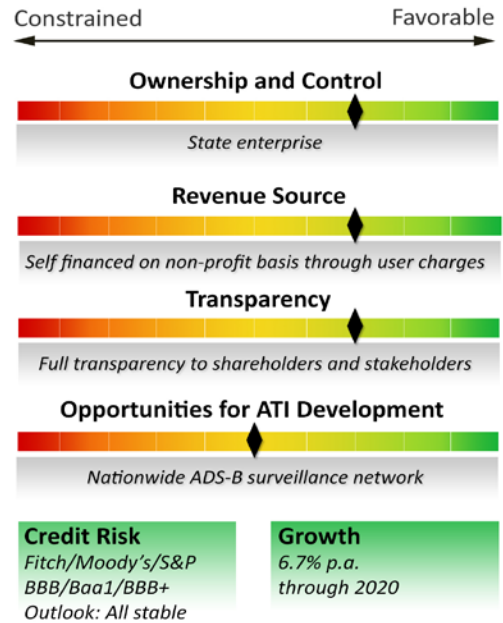
Aeronautical Radio of Thailand, LTD (AeroTHAI)

■ NEXA ASSESSMENT

Thailand serves as a major hub, competing with neighboring countries, especially Malaysia and Singapore, for the European markets and the kangaroo route. The aviation industry in Thailand has endured setbacks from financial crises and political instability, but is slated to rebound as the export-dependent state refocuses export destinations away from stalled economies of developed nations towards regional high growth markets of Southeast Asia.

Aerothai, Thailand’s ANSP, is unique in that it is the only ANSP changing ownership from the private sector to the government sector as state enterprise under the Ministry of Transport and Communications. Aerothai, operating the world’s first long-distance ATM system, the BOBCAT system, developed the software to manage traffic transiting the Bay of Bengal and Afghanistan, integrating the needs of seven primary CAAs, IATA, and approximately twenty-five airlines. Aerothai is the only authority authorized by ICAO to oversee management of traffic crossing the Bay of Bengal. Aerothai faces challenges with airspace restrictions and interoperability between civil and military aircraft due to border disputes with neighboring Cambodia and Myanmar increasing ISR activity in the area.

The Suvarnabhumi International Airport, beginning operations in 2006, boasts the world’s tallest freestanding ATC tower and the fourth largest single-building terminal, enabling the movement of nearly 50 million passengers in 2011. The airport is operated by the Airports of Thailand, a public limited company, established in 2002, which manages five additional international airports in Thailand. AOT is investing in airport infrastructure and technologies to increase the competitiveness of Thailand’s airports, contending with airports in the region in a highly competitive market for airlines’ business. Competition in Southeast Asia among narrow body operators is burgeoning, with new airlines beginning operations catering to different markets on a more competitive cost base. Thai Smile Air, Sapphire, Scoot, as well as an LCC subsidiary of Qantas are set to compete for passengers in the region, building new fleets of A320s and 737s outfitted as LCC aircraft or full-service luxury aircraft. Developments in the ASEAN Single Aviation Market framework will impact approach tactics of these startup airlines as new open sky policies allow for greater flexibility and access to countries and markets in the high growth region of Southeast Asia.



BACKGROUND

- Country in Southeast Asia with total area of 513,120 sq kilometers and a population of 66.7 million people.
- Originally known as the Kingdom of Siam until 1939.
- It is a constitutional monarchy with a civil law legal system and common law influences.

BRIEF HISTORY

- AeroTHAI originally formed by Aeronautical Radio Inc. (ARINC), from the USA, International Aeradio Ltd. (IAL) from England and various airline companies with the consent of the Royal Thai government in 1948; initially called AeroSIAM.
- Royal Thai government purchased majority shares of AeroSIAM and changed name to AeroTHAI in 1963.

COUNTRIES/REGIONS SERVED

AeroTHAI serves the entire Bangkok FIR; FIR PHNOM PENH above FL195, and the portion of the South China Sea west of



Cambodia with air traffic services, navigation services, NOTAs, [Pre-, During, and Post-] flight information, aeronautical information, weather briefings, search and rescue services.

PERFORMANCE

Employees 2,853
ATCOs 651

FACILITIES

Towers 35
ACC 1
Approach Control Center 11

AIRPORTS

Total 105
Paved Runways 64
> 10,000ft 8
8,000ft – 10,000ft 11
5,000ft to 7,999ft 24
< 4,999ft 21
International 4
Heliports 4

Qatar Airways 580,038

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COUNTRY EMBASSY IN THE US

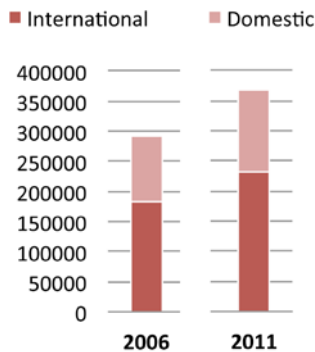
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Thailand Scheduled Airline O&D Movements



Source: OAG Schedules Database

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TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Thai Airlines by 2011

Scheduled Seats

Thai Airways Intl 16,303,133
Thai AirAsia 6,786,000
Bangkok Airways 3,777,134
Nok Air 3,774,892
Orient Thai Airlines 1,634,588

Top Five Foreign Airlines by 2011

Scheduled Seats

Cathay Pacific Airways 1,051,298
Emirates Airlines 872,172
AirAsia 702,000
Korean Air 580,565

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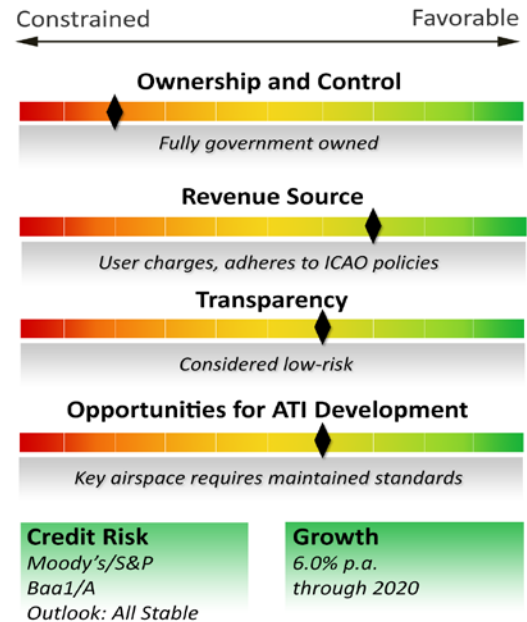
Trinidad and Tobago

Trinidad and Tobago Civil Aviation Authority (TTCAA)

■ NEXA ASSESSMENT

Trinidad and Tobago is strategically situated within the Piarco FIR, which is responsible for providing air traffic services in the region that links North and South America, and Europe to the Caribbean and South America. Two main international airports serve the country – Piarco in Trinidad and ANR Robinson International Airport in Tobago. There is a regular air service between Trinidad and Tobago, run by Caribbean Airlines, the national air service provider. The Trinidad and Tobago Civil Aviation Authority (TTCAA) is currently training employees to provide ATC services at the Robinson tower, currently staffed by the Piarco FIR. In addition, The Aeronav Group recently supplied a new air traffic control tower at Piarco Airport.

Trinidad and Tobago is one of the wealthiest and most developed nations in the Caribbean, and in November 2011 the OECD removed Trinidad and Tobago from its list of Developing Countries. Trinidad and Tobago has earned a reputation as an excellent investment site for international businesses and has one of the highest growth rates and per capita incomes in Latin America. Along with other Caribbean nations, Trinidad and Tobago will need to invest in infrastructure to support continued growth in tourism revenues and the increased amount traffic through its seaports and airports.



BACKGROUND

- First colonized by the Spanish, the islands came under British control in the early 19th century. In 1834 the island's slaves were emancipated. Manpower was replaced with the importation of contract laborers from India between 1845 and 1917, which boosted sugar production as well as the cocoa industry. The discovery of oil on Trinidad in 1910 added another important export. Independence was attained in 1962. The country is one of the most prosperous in the Caribbean thanks largely to petroleum and natural gas production and processing. Tourism, mostly in Tobago, is targeted for expansion and is growing. The government is coping with a rise in violent crime.
- Trinidad and Tobago form a unitary state, with a parliamentary democracy modeled after that of Great Britain. Although completely independent, Trinidad and Tobago acknowledged the British monarch as the figurehead chief of state from 1962 until 1976. In 1976 the country adopted a republican constitution, replacing Queen Elizabeth with a president elected by Parliament. The general direction and control of the government rests with the cabinet, led by a prime minister and answerable to the bicameral Parliament.
- It has a population of 1,303,188 (2007).
- Trinidad and Tobago experienced 16 consecutive years of real GDP growth through 2008 as a result of economic reforms adopted in the early 1990s, tight monetary policy and, until recently, buoyant markets for its export commodities. In 2007, the country experienced a real GDP growth rate of 5.5 percent,

which moderated to 3.5 percent in 2008. The country experienced negative growth of 3.5 percent in 2009, with an expected rebound of 2.5 percent in 2010.

BRIEF HISTORY

- The Trinidad and Tobago Civil Aviation Authority was established by the Civil Aviation Act, 2001 (Act 11 of 2001). The principal function of the Authority is to regulate and administer a safe civil aviation system while ensuring that Trinidad and Tobago properly discharges its obligations under international civil aviation agreements and treaties, in particular, the Convention on International Civil Aviation commonly known as "the Chicago Convention."
- TTCAA is in the process of constructing a new administrative complex in Piarco, Trinidad. It comprises an administration building, an area control center and a training school.

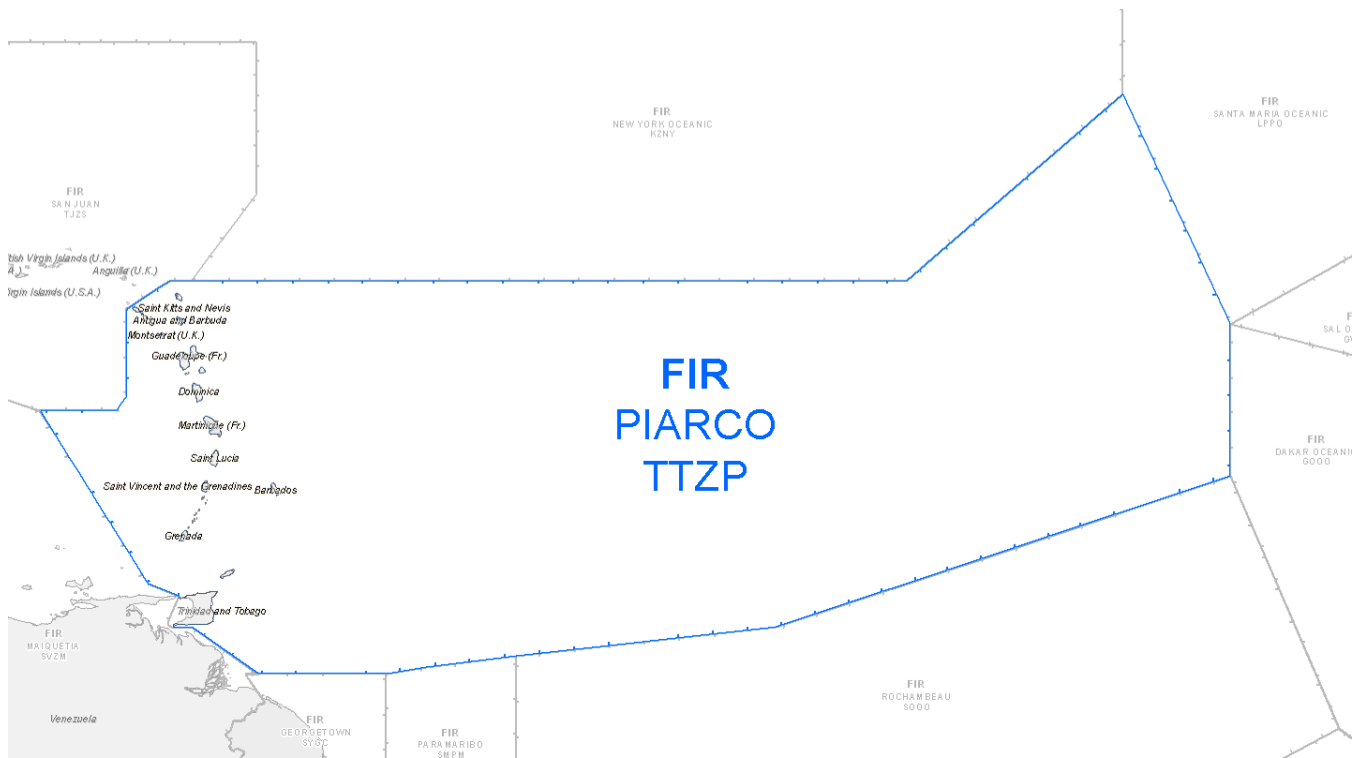
AIRPORTS

Total	6
Paved Runways	3
> 10,000ft	1
8,000ft – 10,000ft	1
5,000ft to 7,999ft	1
< 4,999ft	1

TOP 5 AIRLINES BY SEATS/MOVEMENTS

Top Five Trinidad and Tobagonian Airlines by 2011 Scheduled Seats

Caribbean Airlines	1,683,983
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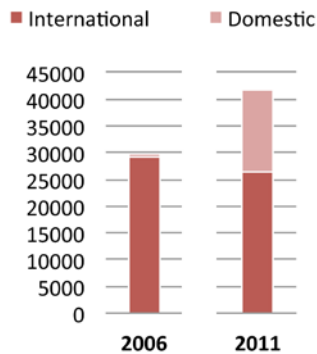


FIR PIARCO TTZP

Top Five Foreign Airlines by 2011 Scheduled Seats

LIAT	172,100
American Airlines	152,473
British Airways	100,570
Continental Airlines	74,963
Copa Airlines	37,880

Trinidad & Tobago Scheduled Airline O&D Movements



Source: OAG Schedules Database

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Turkey

State Airports Administration (DHMI) Devlet Hava Meydanları İşletmesi

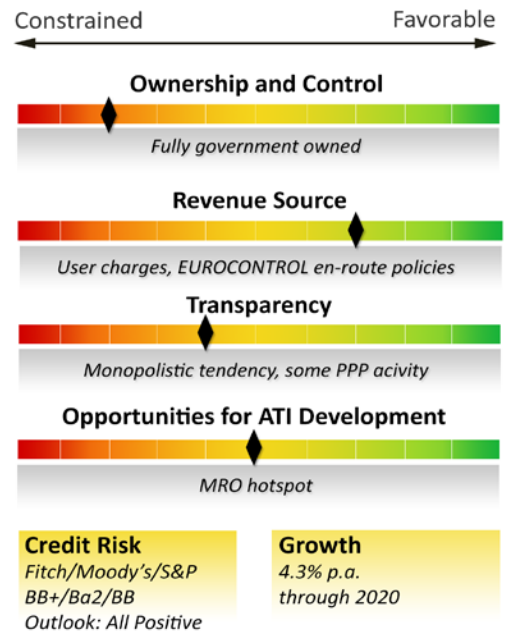
■ NEXA ASSESSMENT

Turkey lies between Europe and Asia serving as a bridge geographically, culturally, and economically. In recent years, Turkey's civil aviation sector has grown ten times faster than the world average, totaling 209 percent from 2002-2010, due primarily to liberalization of the sector and economic growth. After bursting onto the scene, Turkish LCCs (such as Pegasus) have increased their domestic market share, although incumbent Turkish Airlines continues to dominate.

Turkey has a large airspace (almost one million sq kilometers) spread across three continents: Europe, Asia and Africa. The General Directorate of Civil Aviation (DGCA) supervises and monitors the air transport sector and the General Directorate of State Airports Administration (DHMI) manages air navigation systems and most of the airports. Turkey and the EU have begun efforts to integrate the country into Europe's air traffic system. Also, the airspace capacity of both Turkey and Bulgaria should significantly increase following the signing of a pact between the two countries for harmonization and joint technical and procedural strategies.

The combination of new regulatory measures and new infrastructure policies using BOT (build-operate-transfer) along with the entry of new airlines into the market, has helped make the Turkish air transport system meet the rapidly growing demand. The government has begun privatizing its airports and BOT and TOR (transfer of rights) models are rapidly expanding.

In order to supervise and control this growing air traffic in a more efficient and safer way, Turkey is implementing the "System Modernization of ATM Resources in Turkey" Project, so called SMART Project. In recent years, Turkey has also emerged as one of the preferred aircraft MRO centers in the world due to its geographic and low cost advantage. Logistics services are developing in major airports to adapt to the expected high demand for specialized air market segments.



BACKGROUND

- Located in Southeastern Europe and Southwestern Asia, 783,562 sq kilometers, 13,930 sq kilometers of which is water, with a population of 78,785,548.
- Civil law system based on various European legal systems, notably the Swiss civil code.
- The national government has three branches: executive, legislative (unicameral) and judicial.
- President Abdullah Gul was elected in August 2007 by National Assembly vote to a five-year term.
- Aggressive privatization has reduced state involvement in basic industry, banking, transport, and communication.

BRIEF HISTORY

- DHMI came into existence in 1933, taking the responsibilities of the safety of air navigation within the civil airspace in Turkey.
- In November 1984, statutes entered into force and a board of directors were named. Began functions on December 1984.
 - ◊ Public-enterprise company, capital for which is entirely paid by the state, associated with the

Ministry of Transport.

- ◊ Sole supplier of civil air navigation services in Turkey.
- ◊ An authorized capital stock of 50 billion pesos (US\$1.23 billion in 2008), fully held by the national government.
- ◊ Fiscal autonomy, with all moneys earned by the DHMI to be used to fund its operations.

COUNTRIES/REGIONS SERVED

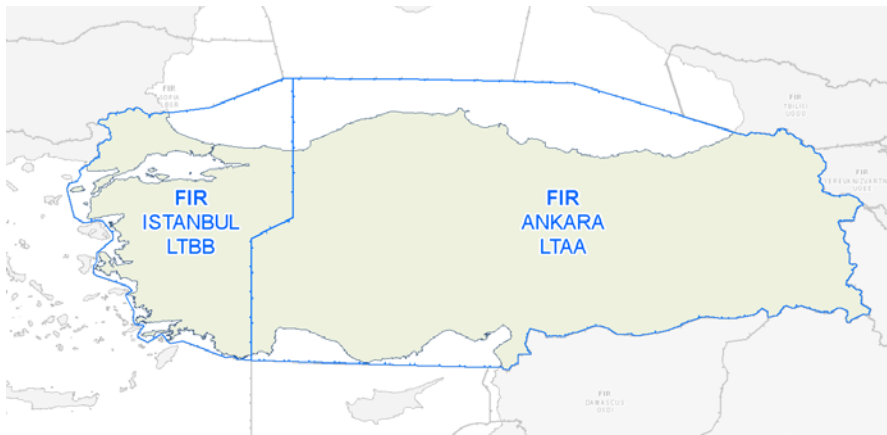
DHMI serves the Ankara and Istanbul flight information region (982,286 sq. nm), providing terminal, en route and oceanic IFR/VFR air traffic control, meteorological and aeronautical information and publications services for commercial, general aviation and military customers.

PERFORMANCE

Employees	5,191
ATCOs	844

FACILITIES

Towers	38
ACC	2



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AIRPORTS

Total	99
Paved Runways	88
> 10,000ft	16
8,000ft – 10,000ft	33
5,000ft to 7,999ft	19
< 4,999ft	20
Heliports	20

Top Five Foreign Airlines by 2011 Scheduled Seats

Thomas Cook Airlines	1,096,314
Lufthansa German Airlines	642,264
Thomson Airways	556,069
Condor Flugdienst	539,219
TUIfly	423,360

EQUIPMENT – COMMUNICATION

- VSAT and TDM networks
- AFTN/CIDIN systems

EQUIPMENT – NAVIGATION

- 5 ILS systems
 - 2 CAT III ILS systems
 - Installation of 4 ILS systems is ongoing
- 1 Localizer
- 1 DVOR system
 - 3 DVOR systems are being installed
- 5 DME systems
- 23 NDB systems

EQUIPMENT – SURVEILLANCE

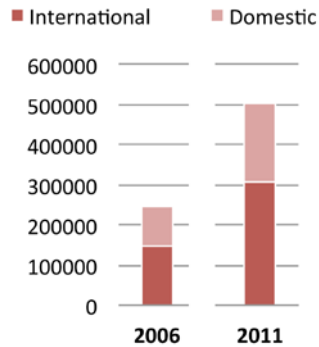
- 19 primary and secondary service radars
- 18 SSR with Mode S interrogation, 5 PSR to be installed
- A-SMGCS for Atatürk, Esenboğa, and Antalya Airports

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Turkish Airlines by 2011 Scheduled Seats

Turkish Airlines	30,919,601
Pegasus Airlines	11,033,831
Atlasjet Airlines	1,968,748
ONUR AIR	1,801,677
SunExpress	1,728,216

Turkey Scheduled Airline O&D Movements



Source: OAG Schedules Database

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PRINCIPAL DIRECTORS

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Title: Deputy Director General
Name: Mr. Bahri Kesici
Title: Deputy Director General
Name: Mr. Mehmet Fatih Olcay
Title: Deputy Director General
Name: Mr. M. Cemil Acar
Title: Head of Aerodromes Department
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United Arab Emirates

General Civil Aviation Authority of the United Arab Emirates (GCAA)

■ NEXA ASSESSMENT

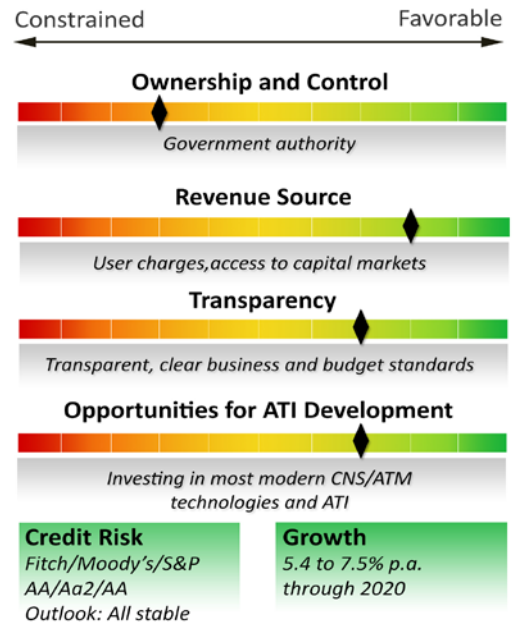
The General Civil Aviation Authority, established in 1996 as the sole authority for the control and regulation of civil aviation in the UAE, is heavily investing in ATI modernization programs, anticipating significant increases in international traffic volumes over the next 20 years. The Middle East is rapidly evolving as an international business hub, currently handling 11 percent of the global market share of international passenger traffic, connecting the major economies of Europe, Asia, and Africa. The UAE has also developed as a tourist destination, handling nine million arrivals in 2009 with expectations for growth above seven percent per annum.

UAE airlines, hub carriers as well as budget and point to point carriers, are taking full advantage of traffic growth in the region. In order to provide better transportation networks to the more than four billion people living within an eight-hour flight window of the Middle East, the GCAA has developed 134 bilateral agreements, with 51 of those being Open Skies agreements. The two main hub carriers of the UAE, Etihad Airways and Emirates Airlines, both government-owned airlines, also utilize UAE's geo-centric location and the "sixth freedom of the air" to expand their transportation networks and effectively link passenger and cargo markets that are otherwise non-serviceable.

UAE airports are investing up to US\$50 billion in greenfield and expansion projects over the next 15 years. The third largest passenger terminal in the world is currently under construction at Abu Dhabi International Airport, with construction estimated to conclude in 2016, increasing the capacity of the airport to 40 million annual passengers. Competing to become the global aviation hub for the world, the Al Maktoum International Airport in Jebel Ali, is the largest greenfield airport under construction in the world, with project totals estimated to be US\$82 billion. In 2009, the GCAA opened the Sheikh Zayed Centre, considered the largest and most advanced traffic management facility in the Middle East, boasting state-of-the-art technology and becoming a regional reference for pioneering in technology. Continuous investments in infrastructure, as well as modern aircraft, have supported the aviation sector of the UAE through the global economic crisis.

Continuous investments in infrastructure, as well as modern aircraft, have supported the aviation sector of the UAE through the global economic crisis.

Although infrastructure spending and traffic volumes for the UAE are optimistic for the foreseeable future, the relatively immaturity of the GCAA, in both operational and regulatory functionalities, which are both currently under the authority of the GCAA, will be a challenge. Airspace capacity is an immediate threat to traffic growth, with more than 50 percent of the UAE airspace restricted solely to military use. Although heavy investments in new technology have increased capacity within the limited airspace, regulations and policies must be addressed by the GCAA and stakeholders in order to unlock latent airspace and reduce pending bottlenecks. The blistering rate of technology adoption is also threatening operational capabilities of the ANSP due to an increasing gap in skillfully trained personnel. Aggressive training, development and recruiting will be necessary to meet the growing demands for skilled employees.



BACKGROUND

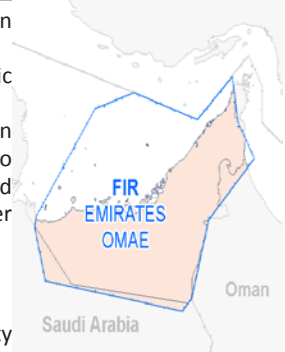
- In 1971, six states – Abu Zaby, 'Ajman, Al Fujayrah, Ash Shariqah, Dubayy, and Umm al Qaywayn – merged to form the United Arab Emirates (UAE). The seventh, Ras al-Khaimah, joined in early 1972.
- In 2008-09, the confluence of falling oil prices, collapsing real estate prices, and the international banking crisis hit the UAE especially hard. In March 2011, about 100 Emirati activists and intellectuals posted on the Internet and sent to the government a petition calling for greater political reform, including the establishment of a parliament with full legislative powers and the further expansion of the electorate and the rights of the Federal National Council (FNC), the UAE's quasi-legislature.
- The government announced a multi-year, US\$1.6-billion

infrastructure investment plan for the poorer northern Emirates.

- The legal system is a mix of Islamic law and civil law.
- The government is a federation with specified powers delegated to the UAE federal government and other powers reserved to member emirates.

BRIEF HISTORY

- The General Civil Aviation Authority (GCAA) was established in 1996 by Federal Cabinet Decree (Law 4) to regulate Civil Aviation and



provide designated aviation services with emphasis on safety and security and to strengthen the aviation industry within the UAE and its upper airspace.

- The GCAA, which is the sole authority for the control and regulation of civil aviation in the UAE, is responsible for the providing of en-route air navigation services and all aspects of flight safety.
- The Sheikh Zayed Air Navigation Centre of the General Civil Aviation Authority (GCAA) of the United Arab Emirates, opened in late 2009, is the largest and most advanced air traffic management facility in the Middle East and one of the world's most technically advanced centers in terms of its design.
- The main ACC building has a 600 sq meter ATC room with sufficient sector suites with the latest technology to accommodate traffic growth for 20 years or a total traffic volume exceeding two million annual movements.
- The new equipment includes ATM display systems, ARTAS and AMHS from Comsoft, while integrated voice communication is supplied by Park Air Systems and the MicroNav ATC simulator, installed in the Emergency ACC. The Centre has a total of 76 working positions for live ACC, military liaison and emergency cum training roles.
- The ATM system permits flexible sectorization to task individual air traffic controllers in the most safe and efficient manner and with a number of modern tools such as arrival and stack managers, as well as short term conflict detection to optimize traffic handling. Voice communication is fully digital from microphone to antenna and connected externally through IP VPN with several layers of redundancy to ensure maximum availability.
- The Centre is compliant with ICAO2012 flight plan format from September 2010. For surveillance the Centre has 13 ADS-B stations with Wide Area Multilateration and one Mode-S Radar.
- The GCAA is quickly becoming a regional reference for pioneering in areas such as integration of ADS-B in the surveillance picture through the ARTAS tracker, which is operational since June 2009, design and operational implementation of RNAV 1 routes both for en-route and in terminal environments.
- Together, these modernization programmes serve to alleviate traffic congestion, minimize delays, shorten routes and create the capacity necessary for sustained growth in air traffic necessary for the economic well-being of the country.

COUNTRIES/REGIONS SERVED

Emirates

PERFORMANCE

Employees 315
ATCOs 55

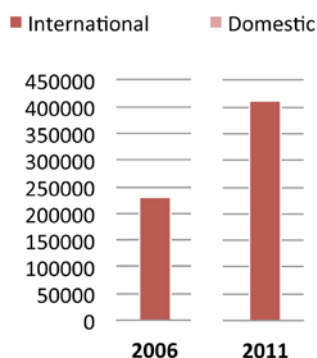
FACILITIES

Towers 0
ACC 1

AIRPORTS

Total 41
Paved Runways 25
> 10,000 12
8,000 – 10,000 3
5,000 to 7,999 4
< 4,999 6
Heliports 5

U.A.E Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Emirati Airlines by 2011 Scheduled Seats

Emirates Airlines	19,167,278
Ethiad Airways	5,803,891
Air Arabia	2,975,778
flydubai	2,801,547

Top Five Foreign Airlines by 2011 Scheduled Seats

Qatar Airways	945,420
Air India Express	900,571
Saudi Arabian Airlines	619,338
Pakistan Intl Airline	615,863
Gulf Air	504,441

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Name: Abdulla Rashed Al Otaiba
Title: President Department of Transport – Abu Dhabi
Name: Sheikh Salem Bin Sultan Al Qasimi
Title: Chairman Department of Civil Aviation – Ras Al Khaimah
Name: Mohammed Abdulla Al Salami
Title: Chairman Department of Civil Aviation - Fujairah
Name: Abdul Wahab Mohammed Al Roomi
Title: Director General Department of Civil Aviation – Sharjah
Name: Brigadier General/ Ibrahim Nasser Al Alawi
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Ukraine

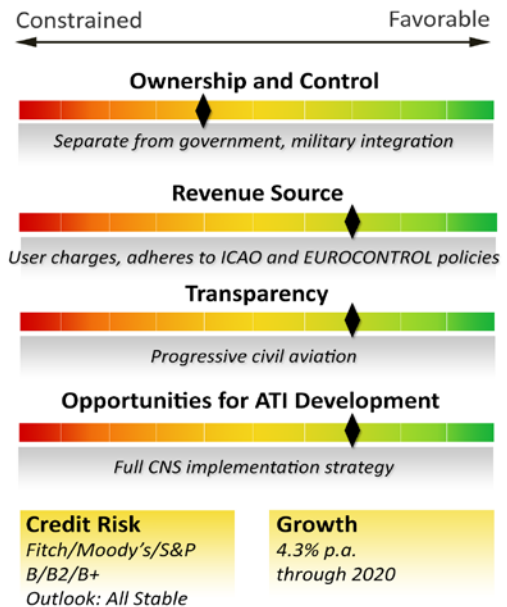
Ukrainian State Air Traffic Service Enterprise (UkSATSE)

■ NEXA ASSESSMENT

The Ukrainian State Air Traffic Service Enterprise (UkSATSE) manages airspace over its own territory as well as over the Black Sea, a high-volume traffic area with major strategic air corridors handling traffic between Europe and the Middle East and the Asia Pacific regions. Of total traffic handled by UkSATSE, international airlines accounted for 78.5 percent of aircraft movements, mostly through en-route handling, as overflights have gone from 40 percent of air traffic movements to 65 percent. The traffic share of Ukrainian-based airlines has fallen nearly 20 percentage points. In 2010, Aerosvit, the national carrier of the Ukraine, was the largest carrier in the Ukraine in terms of flight numbers, but only ranked tenth in terms of en-route charges.

However, air traffic management services in the country are not without their issues or critics. Safety and infrastructure are the primary concerns, with Ukraine holding a Category 2 rating from the FAA. Non-compliance with international standards is a big obstacle. Most airports in Ukraine do not conform to ICAO and IATA standards. Airfields runway surfaces, service vehicles, and equipment are becoming worn out and outdated. UKSATSE presented a new development plan, highlighting the need for permanent upgrades to the Ukrainian air navigation system. These upgrades are aimed at meeting current demands on its services over a five to ten-year period. Extensive modernization has shown benefits in Boryspil and Kharkiv, where public-private partnerships have helped bridge the gap in funding, although other areas of the sector have shown a trend toward monopolistic behavior.

UKSATSE will play an important role in east-west traffic flows and will need to ensure that it does not become a bottleneck for one of the world's most important air corridors.



BACKGROUND

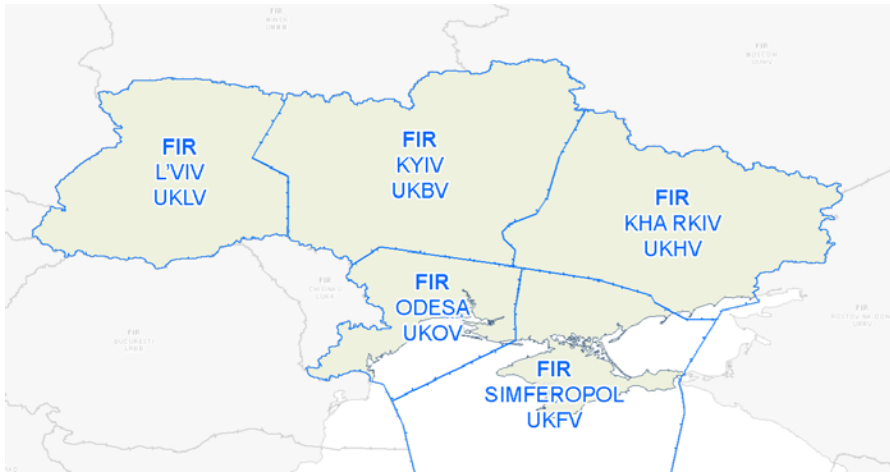
- In 1991 Ukraine declared independence from the Soviet Union.
- It shares a border with Belarus, Hungary, Moldova, Poland, Romania, Russia, and Slovakia with a population of 44.8 million.
- Ukraine is defined as a republic with the capital located in Kyiv.
- The legal system is a civil law system with judicial review of legislative acts.
- After Russia, the Ukrainian republic was far and away the most important economic component of the former Soviet Union, producing about four times the output of the next-ranking republic.
- Shortly after independence, the Ukrainian government liberalized most prices and erected a legal framework for privatization, but widespread resistance to reform within the government and the legislature soon stalled reform efforts and led to some backtracking.
- Outside institutions – particularly the IMF – have encouraged Ukraine to quicken the pace and scope of reforms. Ukrainian government officials eliminated most tax and customs privileges in a March 2005 budget law, bringing more economic activity out of Ukraine's large shadow economy, but more improvements are needed, including fighting corruption, developing capital markets, and improving the legislative

framework.

- The drop in steel prices and Ukraine's exposure to the global financial crisis due to aggressive foreign borrowing lowered growth in 2008 and the economy contracted nearly 15 percent in 2009, among the worst economic performances in the world; growth resumed in 2010 and 2011, buoyed by exports.

BRIEF HISTORY

- The Ukrainian State Air Traffic Service Enterprise (UKSATSE) was established in 1992, and since then it has been the main air navigation service provider in Ukraine. Since 2004 Ukraine is a full-fledged member of EUROCONTROL, and air traffic services, provided by UKSATSE, fully comply with the international standards.
- Among the latest UKSATSE's achievements in different domains are:
 - ◊ updating air traffic control units
 - ◊ building the transmitting and receiving radio centers in Simferopol
 - ◊ setting up automated flight data interchange according to EUROCONTROL standards;
 - ◊ implementation of the Central Meteorological Air Navigation Service System (CMANSS);
 - ◊ permanent development and introduction of new ATS routes;
 - ◊ Implementation of the Air Traffic Control Career



Marketing Program.

- The Ukrainian Joint Civil-Military ATM System has been effectively operating for 10 years, which ensures the appropriate level of flight safety and cost efficiency while guaranteeing national defense capacity. Currently, measures are being taken to associate the Ukrainian Aeronautical Information Service (AIS) with the European AIS Database (EAD).
- Sustained comprehensive modernization of the national air navigation system will make it possible to provide the appropriate level of flight safety during the 2012 European Football Championship and 2014 Winter Olympics in Sochi (Russian Federation) when traffic density is expected to be the highest.

COUNTRIES/REGIONS SERVED

Kharkiv, Kyiv, L'viv, Odesa, Simferopo

PERFORMANCE

Employees 5,811
ATCOs 936

FACILITIES

Towers 32
ACC 5

AIRPORTS

Total 425
Paved Runways 189
> 10,000ft 12
8,000ft – 10,000ft 51
5,000ft to 7,999ft 24
< 4,999ft 102
Heliports 7

EQUIPMENT – COMMUNICATION

- 23 Air traffic services reporting offices (+8 belonging to briefing offices)

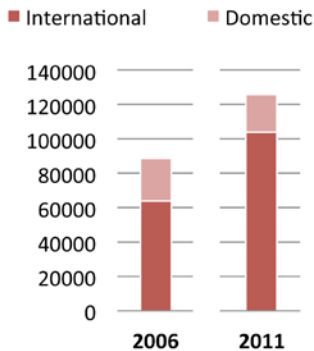
EQUIPMENT – NAVIGATION

- 28 Landing system equipment – OSP
- 67 ADF
- 30 NDBs
- 12 ILS

EQUIPMENT – SURVEILLANCE

- 16 Airport SSR
- 16 En route radars
- ADS-B ground stations

Ukraine Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Ukrainian Airlines by 2011 Scheduled Seats

Aerosvit Airlines	2,326,596
Ukraine Intl Airlines	1,066,094
Dniproavia Joint Stock A	938,474
Wizz Air Ukraine	357,399
UTair Aviation	144,514

Top Five Foreign Airlines by 2011 Scheduled Seats

Lufthansa German Airlines	332,411
Turkish Airlines	271,550
Aeroflot Russian Airlines	239,998
AUSTRIAN A/L AG DBA AUST	197,093
Transaero Airlines	179,652

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Title: Director, Air Navigation and External Relations
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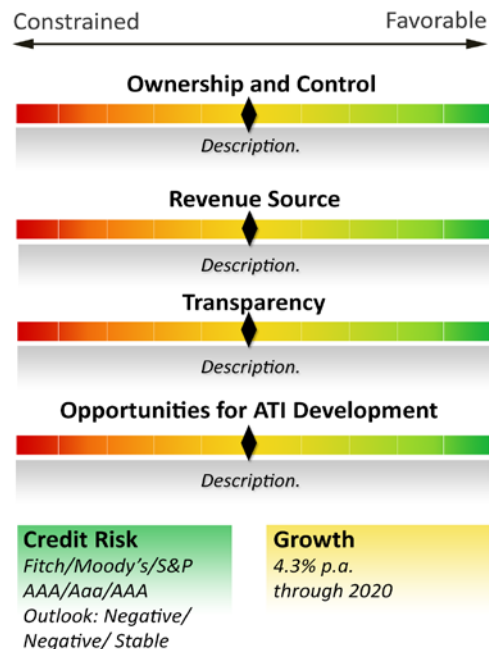
National Air Traffic Services (NATS)

■ NEXA ASSESSMENT

The UK provides air traffic control services for aircraft flying in UK airspace and the heavily-traveled eastern part of the North Atlantic. The UK and Canada collaborate with similar ATC systems over their respective oceanic airspace. National Air Traffic Services (NATS) is responsible for two million flights and 220 million passengers a year. It has two operations centers, Swanwick and Prestwick, and also provides air traffic control services at 15 major UK airports and Gibraltar.

Heathrow is the busiest airport in the United Kingdom and the third busiest airport in the world (as of 2011) in terms of total passenger traffic, handling more international passengers than any other airport around the globe. The current availability of airport capacity has been identified as an important constraint on the ability to meet the increasing demand for air travel. After cancelled plans to expand Heathrow, the Thames Hub proposal, launched in late 2011 and met with mixed reviews, attempts to integrate several infrastructure components (flood barrier, hydroelectric generation, rail lines) and includes plans for one of the world's largest airports.

The United Kingdom is the pioneer in partnerships with private sector in Europe, introducing a PFI (Private Finance Initiative) concept in 1992 and extending across infrastructure sectors, including airports. The next step may be its overall air traffic services capability. The current shareholders in NATS are: the UK government (49 percent); The Airline Group (42 percent) which is a consortium of British Airways, BMI, EasyJet, Monarch Airlines, Thomas Cook Airlines, Thomson Airways, and Virgin Atlantic; BAA Limited (four percent); and NATS employees (five percent). While the government recently announced its intention to auction part of its stake to private investors, the effort has become mired in political and public debate. As financial turmoil continues throughout Europe, private investment opportunities may face obstacles from unforeseen political and economic policy developments.



BACKGROUND

- An island nation of 243,610 sq kilometers with a population of 62.7 million.
- The UK is a constitutional monarchy with a common law system.
- The national government has three branches: executive, legislative (bicameral) and judicial.
- Queen Elizabeth II has held the throne since February 1952. Prime Minister David Cameron was elected May 2010.
- The prime minister appoints the cabinet of ministers, and acts as the voice of the queen.

BRIEF HISTORY

- At the end of WWII, ATS was placed in the Ministry of Civil Aviation.
- In 1962 the National Air Traffic Control Services (NATS) was established as a unified civil/military organization to operate Britain's ATC.
- In 1972 NATS was absorbed into the newly established CAA.
- Since inception, NATS has used a charges-based system, but was still highly dependent on government grants.

- In 1996 NATS was established as a separate company structure, wholly-owned by the CAA.
- The Transport Act was approved in 2000, making NATS a PPP with the government retaining 49 percent shareholding.
- NATS En Route LTD (NERL) is responsible for en route and oceanic ATS, while NATS Services Lrd is responsible for airport ATS and business development.

COUNTRIES/REGIONS SERVED

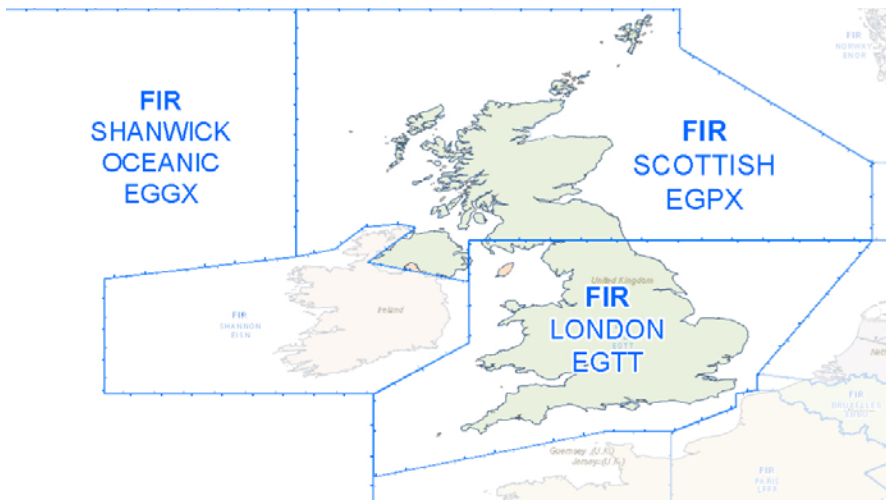
NATS provides ATS in UK airspace, over the eastern part of the North Atlantic and western North Sea, en route and terminal traffic, and 14 major airports including Heathrow, Gatwick, Stansted, Birmingham, Manchester, and Glasgow. NATS controls the Shannon, Scottish, London, and Shanwick Oceanic Flight Information Regions.

PERFORMANCE

Employees	4,621
ATCOs	1,584

FACILITIES

Towers	16
--------	----



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 Title: Director of European and International Affairs
 Name: Mr. Mark Swan
 Title: Director of Airspace Policy
 Name: Ms. Gretchen Burrett
 Title: Director of Safety Regulation Group

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ACC

2 **TOP 5 AIRLINES BY SEATS/ MOVEMENTS**

Top Five British Airlines by 2011 Scheduled Seats

British Airways	26,589,854
easyJet	22,100,661
Flybe	11,286,176
Thomson Airways	5,791,432
Thomas Cook Airlines	4,097,709

Top Five Foreign Airlines by 2011 Scheduled Seats

Ryanair	17,379,306
Aer Lingus	3,540,960
Lufthansa German Airlines	3,087,107
KLM-Royal Dutch Airlines	2,659,509
Air France	1,997,704

AIRPORTS

Total	505
Paved Runways	306
> 10,000ft	9
8,000ft – 10,000ft	32
5,000ft to 7,999ft	124
< 4,999ft	141
Heliports	11

EQUIPMENT – COMMUNICATION

- 21 transmitter and receiver sites

EQUIPMENT – SURVEILLANCE

- 23 En route radars (recently replaced)
- ASR-10SS S-Band primary surveillance radar with Mode S monopulse secondary surveillance radar at Manchester Airport
- The code callsign distribution system replacement *CCDS-R) at UK Swanwick ATCC

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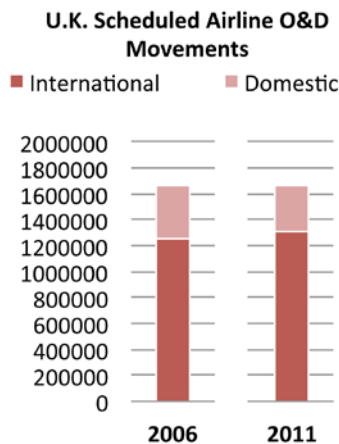
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Source: OAG Schedules Database

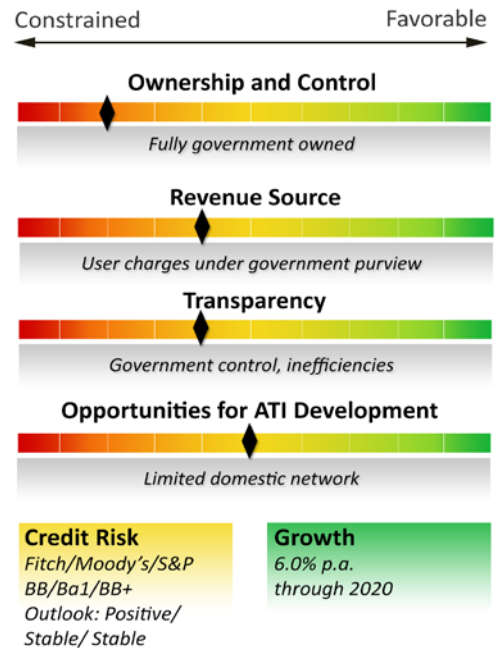
Uruguay

Dirección Nacional de Aviación Civil and Infraestructura Aeronáutica (DINACIA)

■ NEXA ASSESSMENT

Uruguay is characterized by an export-oriented agricultural sector, a well-educated work force, and high levels of social spending. Uruguay's largest airport is Carrasco General Cesáreo L. Berisso International Airport, serving the capital, Montevideo, which handles over 80 percent of Uruguay's international traffic. The other major airport with international traffic is Capitán Corbeta CA Curbelo International Airport in Laguna del Sauce which has services to a number of South American countries. Uruguay has recently awarded Harris Corporation a contract to upgrade ATC facilities in Maldonado, which serves as a major shipping hub for Uruguay and its main trade partners, Brazil and Argentina.

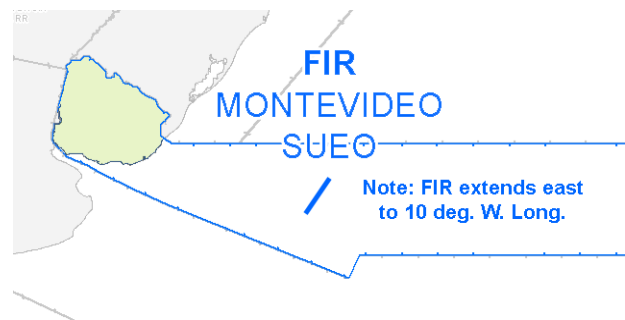
The 25 percent state-owned airline, Primeras Líneas Uruguayas de Navegación Aérea (Pluna) is the national airline of Uruguay, and is based at Montevideo. Uruguay's two main airports have been recording rapid growth the last several months driven by continued expansion of Pluna and the launch of local start-up BQB Air. Due to Uruguay's small size and relatively flat terrain, road and rail dominates, and there is limited domestic air traffic in the country. Despite the trend towards liberalization and Open Skies expansion, there remain considerable government restrictions on airline operations and ownership.



BACKGROUND

- Montevideo, founded by the Spanish in 1726 as a military stronghold, soon took advantage of its natural harbor to become an important commercial center. Claimed by Argentina but annexed by Brazil in 1821, Uruguay declared its independence four years later and secured its freedom in 1828 after a three-year struggle.
- By 1966, economic, political, and social difficulties led to constitutional amendments, and a new constitution was adopted in 1967. In 1973, amid increasing economic and political turmoil, the armed forces closed the Congress and established a civilian-military regime, characterized by repression and widespread human rights abuses. A new constitution drafted by the military was rejected in a November 1980 plebiscite. Following the plebiscite, the armed forces announced a plan for return to civilian rule. National elections were held in 1984. Colorado Party leader Julio María Sanguinetti won the presidency and served from 1985 to 1990. The first Sanguinetti administration implemented economic reforms and consolidated democracy following the country's years under military rule.
- In 2004, the left-of-center Frente Amplio Coalition won national elections that effectively ended 170 years of political control previously held by the Colorado and Blanco parties. Uruguay's political and labor conditions are among the freest on the continent.
- A population of 3.381 million (2012 est., IMF).
- National government is a Constitutional republic, where church and state are officially separated.
- The global financial crisis slowed economic growth, but Uruguay managed to avoid a recession and keep a positive growth rate of 2.6 percent in 2009. GDP growth

reached 8.5 percent in 2010 and 5.7 percent in 2011. The government of Uruguay forecasts annual growth of



- about four percent for 2012.
- Uruguay enjoys a positive investment climate, with a strong legal system and open financial markets. It grants equal treatment to national and foreign investors and, aside from very few sectors, there is neither de jure nor de facto discrimination toward investment by source or origin. Investments are allowed without prior authorization, and there is fully free remittance of capital and profits. A decree passed in 2007 provides significant incentives to local and foreign investors. Domestic investment and foreign direct investment (FDI), which have been traditionally low, increased significantly in recent years.

BRIEF HISTORY

- Until 1935 civil aviation was considered a sport, but in that year the government created the Directorate of Civil Aviation.
- In 1936 the directorate licensed pilots.

- in 1940 the Directorate of Civil Aviation was placed under the control of the Ministry of National Defense. Its duty was to supervise and promote civil aviation for both commercial and sporting purposes.
- In 1977 the Directorate General of Civil Aviation was removed from control of the Air Force and was placed directly under the department of National Civil Aviation and Aviation Infrastructure.
- The National Budget Law No. 17.296 of February 2001, Article 106 merged the departments of National Civil Aviation and Aviation Infrastructure, the Directorate General of Civil Aviation, and the Directorate General of Aviation Infrastructure.

Lan Airlines 110,138
Iberia 73,090

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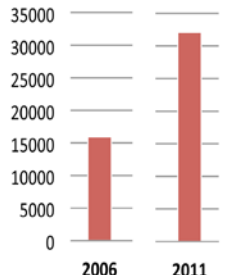
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AIRPORTS

Total	58
Paved Runways > 10,000ft	9
8,000ft – 10,000ft	1
5,000ft to 7,999ft	0
< 4,999ft	4

Uruguay Scheduled Airline O&D Movements

■ International
Note: All COUNTRY NAME movements are international.



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Uruguayan Airlines by 2011 Scheduled Seats

PLUNA	484,250
BQB Air	82,656

Top Five Foreign Airlines by 2011 Scheduled Seats

Aerolineas Argentinas	192,850
TAM Linhas Aereas	127,020
VARIG-GOL Airlines	123,016

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Name: Cnel (Av.) Angel Vanzini
Title: Director General de Infraestructura Aeronáutica
Name: Cnel (Av.) Carlos Amado
Title: Director de Circulación Aérea
Name: Tte. Cnel (Av.) Pedro Bielemborg
Title: Director de Seguridad Operacional

United States of America

Federal Aviation Administration (FAA)

■ NEXA ASSESSMENT

The US Federal Aviation Administration (FAA) states that its mission is to provide the safest, most efficient aerospace system in the world. In the 1990s, satellite technology received increased emphasis in the FAA's development programs as a means to improvements in communications, navigation, and airspace management. The Air Traffic Organization is responsible today for moving air traffic safely and efficiently. About 35,000 controllers, technicians, engineers, and support personnel run this organization on a 24/7 basis, managing more than 7,000 takeoffs and landings per hour, and more than 660 million passengers and 37 billion cargo revenue ton miles of freight a year.

Today, amid federal budget constraints and facing technological obsolescence, CNS/ATM modernization programs dominate the debate about the FAA's long-term efficacy as an air navigation service provider. NextGen, a \$40 billion multi-year program, is intended to transform the way the FAA provides air navigation services to support an expected doubling of airspace demand from an increasingly diverse US aviation industry. The FAA has identified five transformational NextGen programs that will fundamentally change the way the system will communicate, navigate, and collaboratively manage air traffic. In NextGen, the FAA also intends to build a comprehensive safety management system into each new system, comprised of complementary and integrated programs within the FAA Lines of Business.

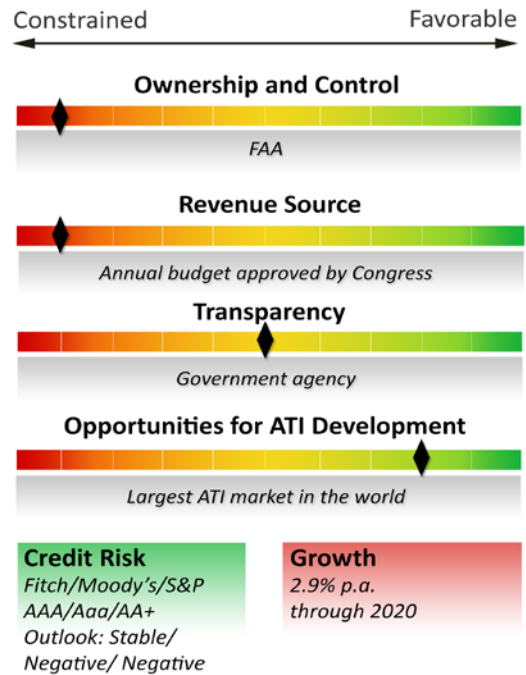
The FAA's *National Airspace System Capital Investment Plan for Fiscal Year 2013–2017* is the latest document that describes planned investments in the US national airspace system for the next five years. All capital programs therein directly support the agency's *Strategic Plan (Destination 2025) Goals, Outcomes and Performance Metrics*. Details of all major NextGen programs can be found in these two documents.

Accounts	FY 2011 Actual	FY 2012 Enacted	FY 2013 Request
Operations	\$9,514	\$9,653	\$9,718
Facilities and Equipment	\$2,731	\$2,731	\$2,850
Research, Engineering and Development	\$170	\$168	\$180
Grants in Aid for Airports	\$3,515	\$3,550	\$2,424
Total	\$15,930	\$16,102	\$15,172

However, federal fiscal challenges directly impacting FAA modernization loom very large. The table below summarizes the major FAA accounts. Over the past five years, facilities and equipment (F&E) modernization budgets, where the agency funds NextGen investments, have been "too little, too late," according to NEXA. In February 2012, after five years of delay and 23 Continuing Resolutions, the US Congress finally enacted the

FAA Modernization and Reform Act of 2012. Despite claims by politicians that the bill opens the door to ATC modernization by fully funding NextGen, the bill does nothing of the kind. In fact, it freezes for four years the FAA account for Facilities and Equipment from which NextGen projects (and many other capital expenditures) are paid. All the other main FAA accounts, including airport grants (AIP), operations (payroll), and research (tiny), are also frozen for four years—making this the first FAA reauthorization ever that does not increase spending. In late 2012, the potential effect of sequestration on the FAA could amount to a surprise \$1 billion in cuts, which could cripple NextGen initiatives. NextGen could lose between 30 and 50 percent of its funding, not the eight percent that sequestration math leads many to believe.

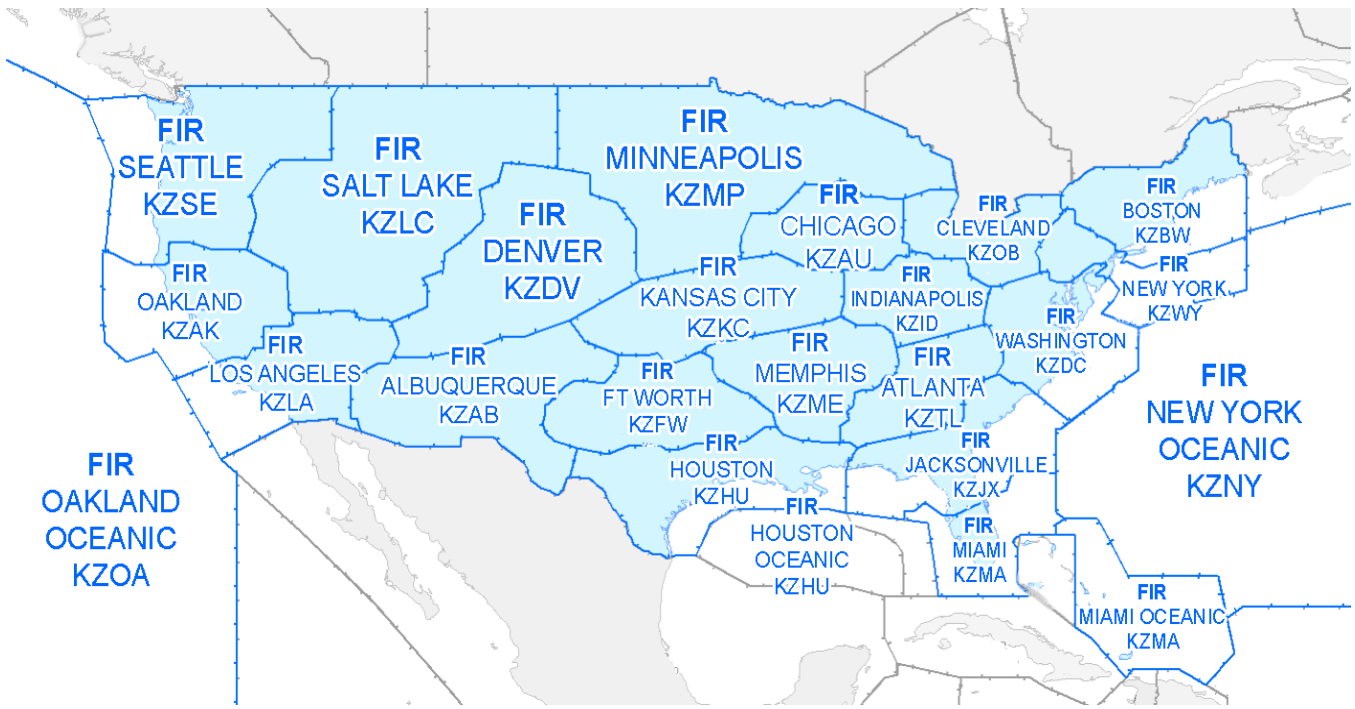
Given the severe financial impacts of air traffic gridlock on any nation in terms of trade, tourism, and business, but especially a nation in a delicate state of economic recovery from a crushing recession, it is of great importance to the US government to ensure an efficient air traffic control system. Public-private partnerships can overcome most government fiscal constraints and need careful examination by aerospace companies, lenders, and government bodies.



BACKGROUND

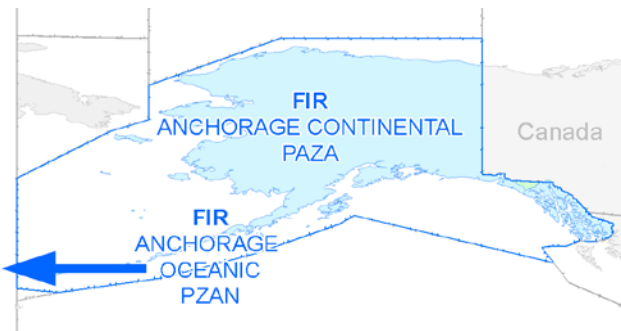
- Britain's American colonies broke with the mother country in 1776 and were recognized as the new nation of the United States of America following the Treaty of Paris in 1783.

- The US has the largest and most technologically powerful economy in the world, with a per capita GDP of \$48,100. In this market-oriented economy, private individuals and business firms make most of the decisions, and the federal and state governments



buy needed goods and services predominantly in the private marketplace. US business firms

enjoy greater flexibility than their counterparts in Western Europe



and Japan in decisions to expand capital plants, to lay off surplus workers, and to develop new products. At the same time, they face higher barriers to enter their rivals' home markets than foreign firms face entering US markets. US firms are at or near the forefront in technological advances, especially in computers and in medical, aerospace, and military equipment; their advantage has narrowed since the end of World War II.

- The global economic downturn, the sub-prime mortgage crisis, investment bank failures, falling home prices, and tight credit

pushed the US into a recession by mid-2008. GDP contracted until the third quarter of 2009, making this the deepest and longest downturn since the Great Depression. To help stabilize

financial markets, in October 2008 the US Congress established a \$700 billion Troubled Asset Relief Program (TARP). The government used some of these funds to purchase equity in US banks and industrial corporations, much

of which had been returned to the government by early 2011. In January 2009, the US Congress passed and President Barack Obama signed a bill providing an additional \$787 billion fiscal stimulus to be used over ten years – two-thirds on additional spending and one-third on tax cuts – to create jobs and to help the economy recover.

BRIEF HISTORY

- The FAA is a federal agency in the US Department of Transportation. The Air Traffic Organization is the service provision branch of the FAA and is responsible for moving

air traffic safely and efficiently.

- To ensure aviation's future viability, FAA is now working with its federal and industry partners to develop a flexible aerospace system that responds to the changing needs of businesses and customers in the 21st century. The strength of the NextGen system depends on lower costs, improved service, greater capacity, and smarter security measures.

PERFORMANCE

Employees	35,224
ATCOs	18,233

FACILITIES

Towers	512
ACC	21

AIRPORTS

Total	15,079
Paved Runways	5,194
> 10,000ft	189
8,000ft – 10,000ft	235
5,000ft to 7,999ft	1,479
< 4,999ft	3,291
Heliports	126

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five American Airlines by 2011 Scheduled Seats

Delta Air Lines	192,253,943
Southwest Airlines	157,451,246

American Airlines	127,260,452
US Airways	103,393,055
United Airlines	94,114,691

Name: Mr. D. Kirk Shaffer
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Name: Ms. Julie Oettinger
 Title: Acting Assistant Administrator for Aviation Policy, Planning and Environment

Top Five Foreign Airlines by 2011 Scheduled Seats

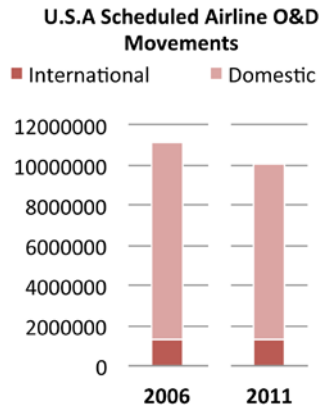
Air Canada	5,483,346
British Airways	3,848,813
Lufthansa German Airlines	3,414,278
Air France	2,297,357
Virgin Atlantic Airways	2,049,073

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Source: OAG Schedules Database

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Name: Mr. David Grizzle
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Venezuela

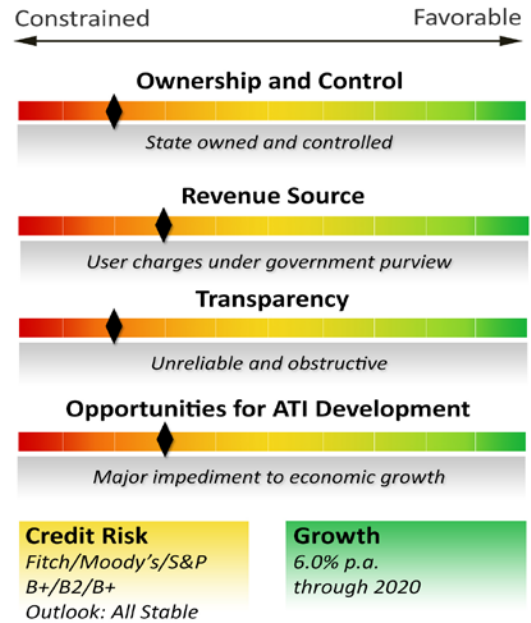
National Institute of Civil Aviation (INAC)

■ NEXA ASSESSMENT

Venezuela has 12 international airports but domestic air travel can be unreliable. Caracas is the country’s major aviation hub via Simón Bolívar International Airport and handles flights to most airports around the country. Conviasa is the flag carrier and largest airline of Venezuela, operating under the authority of the Ministry of Aquatic and Air Transport. In April 2012, Conviasa was banned from flying to countries in the European Union due to safety concerns.

Venezuela has vast natural resources, particularly oil and gas, but its business environment is one of the most challenging in the world; the legislative environment is uncertain, and federal and local governments can be highly obstructive, if not openly hostile, to private enterprises. The state continues to control key sectors of the economy, including upstream oil and gas production, and has sought to increase its role in key sectors such as telecommunications and steel. Meanwhile, ambiguities in the investment environment remain, such as continued high levels of bureaucracy and corruption, large macroeconomic imbalances, and political and policy uncertainty.

After opposition governor candidates were elected in 2008, President Hugo Chavez nationalized many public services to remove them from states’ purview, resulting in the deterioration of roads, ports, and airports infrastructure. To compound the problem, onerous foreign exchange controls cause lengthy delays in acquiring spare parts for aircraft and other machinery. All major countries except Venezuela have increased private participation in most of the main transport modes, including air transport. Although investment is lacking, ICAO remains active in Venezuela. Its Technical Cooperation Bureau has worked with Venezuela in the areas of airport infrastructure and air traffic management systems on projects totaling more than US\$200 million.

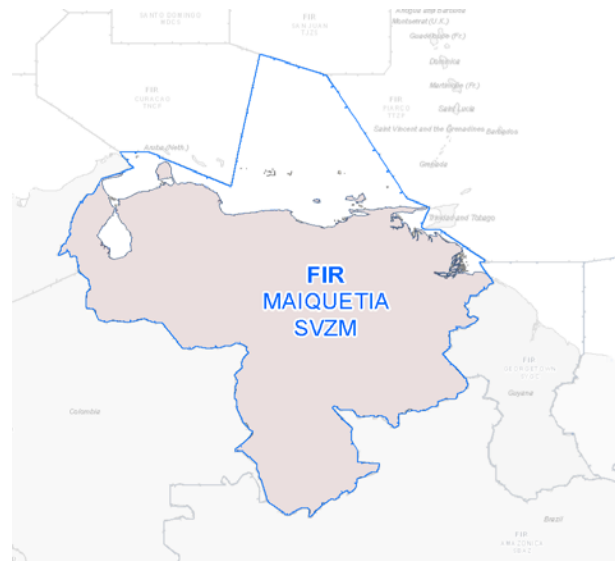


BACKGROUND

- Country in northern South America with a total area of 912,050 sq kilometers and a population of 27.6 million.
- The national government is a federal republic.
- President Hugo Chavez Frias since February 1999; Executive Vice President Elias Jaua Milano (since January 2010).
- Venezuela was ruled by generally benevolent military strongmen, who promoted the oil industry and allowed for some social reforms. Democratically elected governments have held sway since 1959.
- Hugo Chavez, president since 1999, seeks to implement his “21st Century Socialism,” which purports to alleviate social ills while at the same time attacking capitalist globalization and existing democratic institutions. Current concerns include: a weakening of democratic institutions, political polarization, a politicized military, drug-related violence along the Colombian border, overdependence on the petroleum industry with its price fluctuations, and irresponsible mining operations that are endangering the rain forest and indigenous peoples.

BRIEF HISTORY

- Created in December 2005, the National Institute of Civil Aviation is the aviation authority of the Republic of Venezuela and a legal entity independent of the National



Treasury, with technical, financial, organizational, and administrative autonomy. Its purpose is to oversee the aviation system, provide support services to air navigation and develop policies for commercial airspace.

Starting April 2009, the vice president of Venezuela had oversight of the National Institute for Civil Aviation.

AIRPORTS

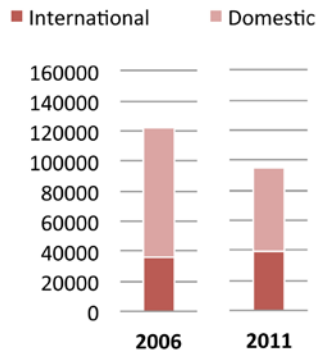
Total	409
Paved Runways	129
> 10,000ft	5
8,000ft – 10,000ft	10
5,000ft to 7,999ft	34
< 4,999ft	80
Heliports	4

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Venezuelan Airlines by 2011 Scheduled Seats

Aserca Airlines	1,839,286
Aerpostal-Alas De Venezu	1,148,965
Conviasa	1,143,218
Avior Airlines	927,936
Santa Barbara Airlines	528,017

Venezuela Scheduled Airline O&D
Movements



Source: OAG Schedules Database

Top Five Foreign Airlines by 2011 Scheduled Seats

American Airlines	441,976
Copa Airlines	301,256
Avianca	206,075
VARIG-GOL Airlines	119,600
Iberia	113,938

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Name: Lic. Carmen Lanza
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Vietnam

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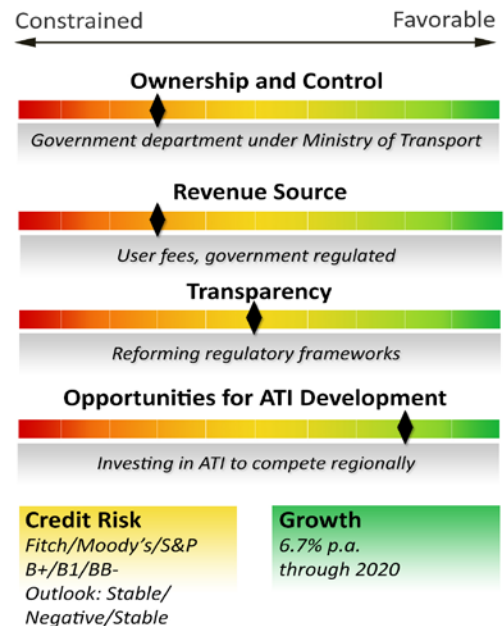
■ NEXA ASSESSMENT

Vietnam could become the fastest growing emerging economy, stimulated by the key role the aviation industry plays in its economic development. While regional estimates for air traffic place Vietnam in the highest growth region in the world, the country faces fierce competition from neighboring countries, all aiming to become the regional hub for passengers and cargo. Vietnam is busy reforming regulatory frameworks, developing PPPs to aid in developing aviation infrastructure, and deregulating the airlines to promote competition. In 2007, after joining the WTO, Vietnam's government launched a large-scale privatization effort, precipitating a flood of FDI.

In 2007, the Civil Aviation Administration of Vietnam, a government department under the Ministry of Transport, announced plans to quadruple the country's airport capacity by 2020 in order to accommodate strong growth in demand for passenger and cargo traffic, with priority for development of international airports with tourism appeal. The largest of these projects is the Long Thanh International Airport which is due to begin construction in 2015, with an estimated price tag of US\$10 billion. Vietnam's Ministry of Planning and Investment has realized that foreign investment in both capital and expertise, is needed to support airport construction projects. These airport improvements are part of a greater blueprint drawn up by government to make Vietnam Asia's fourth largest aviation market by 2025.

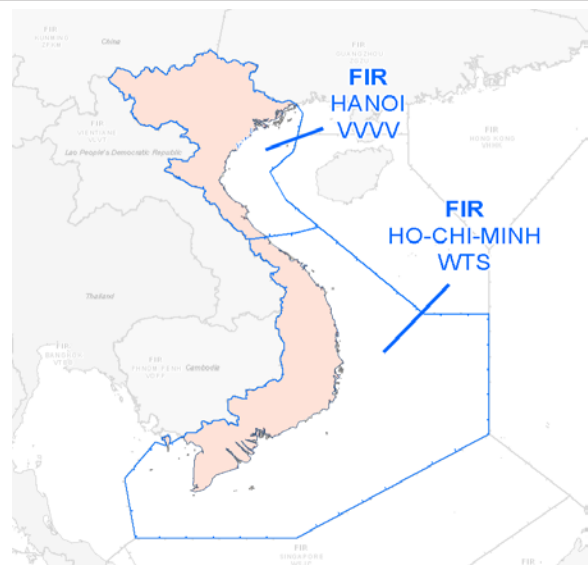
Vietnam Airlines is rapidly growing revenues, increasing 33.7 percent in 2010, making 65 percent of profits from the international passenger markets, of which it has roughly 50 percent of the market share. The airline is planning on adding 34 aircraft to its fleet between 2011 and 2015 and has an IPO scheduled for 2013 to raise capital. Foreign investors will have access to 20 percent to 30 percent of the shares during the IPO. While Vietnam Airlines grows, startup airlines are facing difficulties getting off the ground, with four of the five private carriers licensed by government in the last four years remaining grounded.

With fleet expansion plans in the works, Vietnam's, and more generally Asia's, pilot shortage will continue to hamper operations. The pilot shortage is further exasperated from foreign airline recruitment. ICAO estimates a total of 187,885 pilots are needed in the Asia Pacific region in 2030. Annualizing pilot demand and comparing to current pilot training capacity, Asia Pacific's shortfall, the highest of all the ICAO regions, is over 6,000 pilots per year.



BACKGROUND

- The conquest of Vietnam by France began in 1858 and was completed by 1884. It became part of French Indochina in 1887. Vietnam declared independence after World War II, but France continued to rule until its 1954 defeat by Communist forces under Ho Chi Minh. Under the Geneva Accords of 1954, Vietnam was divided into the Communist North and anti-Communist South. US economic and military aid to South Vietnam grew through the 1960s in an attempt to bolster the government, but US armed forces were withdrawn following a cease-fire agreement in 1973. Two years later, North Vietnamese forces overran the South reuniting the country under Communist rule. Despite the return of peace, for over a decade the country experienced little economic growth because of conservative leadership policies, the persecution and mass exodus of individuals – many of them successful South Vietnamese merchants – and growing



international isolation.

- Vietnam has a population of about 90 million (2011).
- The national government is a single-party constitutional republic (Communist Party) consisting of three branches: executive— president (head of state and chair of National Defense and Security Council) and prime minister (heads cabinet of ministries and commissions). Legislative— National Assembly. Judicial— Supreme People’s Court; Prosecutorial Supreme People’s Procuracy.
- Following economic stagnation after reunification from 1975 to 1985, the 1986 Sixth Party Congress approved broad economic reforms (known as “Doi Moi,” or “renovation”) that introduced market reforms, opened up the country for foreign investment, and dramatically improved Vietnam’s business climate. Vietnam became one of the fastest-growing economies in the world, averaging around eight percent annual gross domestic product (GDP) growth from 1990 to 1997 and 6.5 percent from 1998-2003. GDP grew more than eight percent annually from 2004 to 2007, slowed to 5.3 percent growth in 2009, recovered to 6.8 percent in 2010, and reached 5.8 percent over the first nine months of 2011.
- Vietnam was granted permanent normal trade relations (PNTR) status by the United States in December 2006. To meet the obligations of WTO membership, Vietnam revised nearly all of its trade and investment laws and guiding regulations and opened up large sectors of its economy to foreign investors and exporters.

BRIEF HISTORY

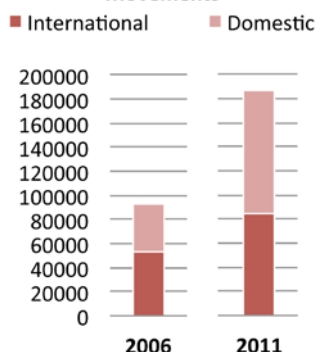
- The Vietnam Civil Aviation Administration is under the Ministry of Transport. Its duties and powers include:
 - ◊ Develop and submit to the Minister of Transport draft legal documents on civil aviation.

- ◊ Disseminate information and educate the public on aviation law.
- ◊ Aviation security
- ◊ Investigation of aviation accidents
- ◊ Airport management
- ◊ Organize scientific research and technology transfer for the aviation industry.

AIRPORTS

Total	44
Paved Runways > 10,000ft	37
8,000ft – 10,000ft	9
5,000ft to 7,999ft	5
< 4,999ft	14
Heliports	9
	1

Vietnam Scheduled Airline O&D Movements



Source: OAG Schedules Database

TOP 5 AIRLINES BY SEATS/ MOVEMENTS

Top Five Vietnamese Airlines by 2011 Scheduled Seats

Vietnam Airlines	15,224,480
Jetstar Pacific Airlines	2,487,036
Vietjet Air	136,104
Air Mekong	113,880

Top Five Foreign Airlines by 2011 Scheduled Seats

Thai Airways Intl	442,554
Asiana Airlines	318,430
Singapore Airlines	290,472
Tiger Airways	277,560
China Airlines	268,245

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Title: Deputy Director General
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