



**Asia-Pacific
Economic Cooperation**

Develop Air Connectivity in the APEC Region

RUSSIA

Tourism Working Group

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Glossary

The following section presents a list of commonly used expressions and abbreviations found in the report.

Connecting Potential – Common rates of passengers connecting beyond/behind when traveling through a hub to/from a particular region.

Induction/Stimulation – Initial spike in passenger demand when new non-stop service is offered due to better accessibility, shorter travel time, lower cost, etc.

List of Abbreviations

PDEW – Passenger daily each way (passenger demand in each direction between a select origin and destination).

SDEW – Seats daily each way (number of seats offered in each direction on a non-stop or one-stop flight segment).

OD – Origin and destination.

Airport Codes

AAQ – Anapa, RUS

ACA – Acapulco, MEX

ADL – Adelaide, AUS

AER – Sochi, RUS

AGU – Aguascalientes,
MEX

AKJ – Asahikawa, JPN

AKL – Auckland, NZ

ANF – Antofagasta, CHL

AOR – Alor Setar, MAS

AQP – Arequipa, CHL

ARH – Arkhangelsk, RUS

ASF – Astrakhan, RUS

ATL – Atlanta, US

AUS – Austin, US

AYP – Ayacucho, PE

BCD – Negros Occidental,
PH

BDJ – Banjarmasin, INA

BHE – Blenheim, NZ

BJX – Silao, MEX

BKI – Kota Kinabalu, MAS

BKK – Bangkok, THA

BLI – Bellingham, US

BMV – Buon Ma Thuot,
VN

BNA – Nashville, US

BNE – Brisbane, AUS

BOS – Boston, US

BPN – Balikpapan, INA

BUR – Burbank, US

BWN – Bandar Seri
Begawan, BD

BXU – Butuan, PH

CAN – Guangzhou, PRC

CBO – Cotabato, PH

CCP – Concepción, CHL

CEB – Cebu, PH

CEI – Chiang Rai, THA

CEK – Chelyabinsk, RUS

CEN – Ciudad Obregón,
MEX

CGK – Jakarta, INA

CGO – Zhengzhou, PRC

CGQ – Changchun, PRC

CGY – Cagayan de Oro and Iligan, PH	DME – Domodedovo, RUS	HRB – Harbin, PRC
CHC – Christchurch, NZ	DMK – Bangkok, THA	HUI – Hue, VN
CJA – Cajamarca, PE	DPS – Bali, INA	HUZ – Huizhou, PRC
CJC – Calama, CHL	DRW – Darwin, AUS	IAD – Washington, US
CJJ – Cheongwon-gu, ROK	DTW – Detroit, US	IAH – Houston, US
CJU – Jeju, ROK	DUD – Dunedin, NZ	ICN – Seoul, ROK
CKG – Chongqing, PRC	DVO – Davao City, PH	ILO – Ilo, PE
CLT – Charlotte, US	EAT – Douglas County, US	IQQ – Iquique, CHL
CME – Ciudad del Carmen, MEX	EWR – Newark, US	IQT – Iquitos, PE
CNS – Cairns, AUS	EZE – Buenos Aires, ARG	ISG – Ishigaki, JPN
CNX – Chiang Mai, THA	FAT – Fresno, US	ITM – Osaka, JPN
CSX – Changsha, PRC	FLL – Fort Lauderdale, US	IWK – Iwakuni, JPN
CTS – Hokkaido, JPN	FOC – Fuzhou, PRC	JFK – New York, US
CTU – Chengdu, PRC	FSZ – Shizuoka, JPN	JHB – Johor, MAS
CUN – Cancun, MEX	FUK – Fukuoka, JPN	JJN – Quanzhou, PRC
CUZ – Cusco, PE	GDL – Guadalajara, MEX	JNZ – Jinzhou, PRC
CVG – Cincinnati, US	GEG – Spokane, US	JOG – Yogyakarta, INA
CXR – Nha Trang, VN	GMP – Seoul, ROK	JUL – Juliaca, PE
DAD – Da Nang, VN	GUM – Tamuning and Barrigada, GUM	KBR – Kota Bharu, MAS
DAL – Dallas, US	GYS – Guangyuan, PRC	KBV – Krabi, THA
DCA – Washington, US	HAK – Haikou, PRC	KCH – Kuching, MAS
DEN – Denver, US	HAN – Ha Noi, VN	KGD – Kaliningrad, RUS
DFW – Dallas, US	HGH – Hangzhou, PRC	KHH – Kaohsiung, CT
DGO – Durango, MEX	HKG – Hong Kong, China,	KHN – Nanchang, PRC
DGT – Dumaguete, PH	HKC	KIX – Osaka, JPN
DJB – Jambi City, INA	HKT – Phuket, THA	KKE – Kerikeri, NZ
DLC – Dalian, PRC	HND – Tokyo, JPN	KLO – Kalibo, PH
DLI – Da Lat, VN	HNL – Honolulu, US	KMG – Kunming, PRC
		KNH – Kinmen, PRC
		KNO – Kuala Namu, INA
		KOJ – Kirishima, JPN

KRR – Krasnodar, RUS	MRY – Monterey, US	PIU – Piura, PE
KUF – Samara, RUS	MSP – Minneapolis–Saint Paul, US	PLM – Palembang, INA
KUL – Kuala Lumpur, MAS	MTT – Cosoleacaque, MEX	PLW – Palu, INA
KWL – Guilin, PRC	MZG – Magong City, CT	PMC – Puerto Montt, CHL
KZN – Tatarstan, RUS	NBC – Nizhnekamsk, RUS	PMR – Palmerston North City, NZ
LAS – Las Vegas, US	NGB – Ningbo, PRC	PNK – Pontianak, INA
LAX – Los Angeles, US	NGO – Nagoya, JPN	POM – Port Moresby, PNG
LED – Saint Petersburg, RUS	NKG – Nanjing, PRC	PPQ – Paraparaumu, NZ
SVX – Yekaterinburg, RUS	NKM – Nagoya, JPN	PQC – Phu Quoc, VN
LGA – NY–La Guardia, US	NNG – Nanning, PRC	PSP – Palm Springs, US
LGK – Padang Matsirat, Langkawi, MAS	NPE – Napier, NZ	PUS – Busan, ROK
LHW – Lanzhou, PRC	NPL – New Plymouth, NZ	PVG – Shanghai, PRC
LIM – Lima, PE	NRT – Tokyo, JPN	PVR – Puerto Vallarta, MEX
LOP – Lombok, INA	NSN – Nelson, NZ	PXU – Pleiku, VN
LPF – Liupanshui, PRC	NTG – Nantong, PRC	PYX – Pattaya, THA
LPT – Lampang, THA	OAK – Oakland, US	RDU – Raleigh, Durham, US
MBT – Masbate City, PH	OAX – Oaxaca, MEX	REP – Siem Reap, KHM
MCC – Sacramento, US	OKA – Naha, JPN	REX – Reynosa, US
MCO – Orlando, US	OOL – Gold Coast, AUS	RGN – Mingaladon, MMR
MDW – Chicago, US	ORD – Chicago, US	RNO – Reno, US
MDZ – Mendoza, ARG	OVB – Novosibirsk, RUS	ROC – Rochester, US
MEL – Melbourne, AUS	OZC – Ozamiz, PH	ROT – Rotokawa, NZ
MEX – Mexico City, MEX	PDG – Sumatra, INA	ROV – Rostov-on-Don, RUS
MFM – Macau, MAC	PEK – Beijing, PRC	RSU – Yeosu, ROK
MIA – Miami, US	PEN – Penang, MAS	RTW – Saratov City, RUS
MLM – Alvaro Obregon, Michoacan, MEX	PER – Perth, AUS	
MNL – Manilla, PH	PHL – Philadelphia, US	
	PHX – Phoenix, US	

RXS – Roxas City, PH	SYO – Sakata, JPN	URC – Urumqi, PRC
SAN – San Diego, US	SYX – Sanya, PRC	USM – Koh Samui, THA
SCL – Santiago, CHL	SZX – Shenzhen, PRC	VCL – Chu Lai, VN
SEA – Seattle, US	TAC – Tacloban, PH	VDH – Dong Hoi, VN
SFO – San Francisco, US	TAM – Tampico, MEX	VER – Veracruz, MEX
SGN – Ho Chi Minh, VN	TAO – Qingdao, PRC	VII – Vinh, VN
SHA – Shanghai, PRC	TAV – Tau, ASM	VKO – Moscow, RUS
SHE – Shenyang, PRC	TBP – Tumbes, PE	VOZ – Voronezh, RUS
SIN – Singapore, SGP	TDX – Trat, THA	VSA – Villahermosa, MEX
SIP – Simferopol, UKR	TGG – Kuala Terengganu, MSA	VVO – Vladivostok, RUS
SJC – San Jose, US	TGZ – Chiapa de Corzo, MEX	WAG – Whanganui, NZ
SJD – San Jose del Cabo, MEX	TIJ – Tijuana, MEX	WEH – Weihai, PRC
SLC – Salt Lake City, US	TKG – Bandar Lampung, INA	WLG – Wellington, NZ
SLP – San Luis Potosi, MEX	TLC – Toluca, MEX	WNZ – Wenzhou, PRC
SMF – Sacramento, US	TNA – Jinan, PRC	WRE – Whangarei city, NZ
SNA – Santa Ana, US	TPE – Taipei, CT	WUH – Wuhan, PRC
SOC – Solo/Surakarta, INA	TPP – Tarapoto, PE	WUX – Wuxi, PRC
SPN – Saipan, US	TRC – Torreon, MEX	XIY – Xi'an, PRC
SRG – Semarang, INA	TRU – Trujillo, PE	XMN – Xiamen, PRC
STL – St. Louis, US	TSA – Songshan, CT	YEG – Edmonton, CDA
STW – Stavropol Krai, RUS	TSN – Tianjin, PRC	YGJ – Yonago, PRC
SUB – Surabaya, INA	TTJ – Tottori, JPN	YHZ – Halifax, CDA
SVO – Moscow, RUS	TXG – Taichung, CT	YKA – Kamloops, CDA
SVX – Koltsovo, RUS	TYN – Taiyuan, PRC	YLW – Kelowna, CDA
SWA – Jieyang Chaoshan, PRC	UFA – Ufa, RUS	YNJ – Yanji, PRC
SYD – Sydney, AUS	UIH – Qui Nhon, VN	YOW – Ottawa, CDA
	UKB – Kobe, JPN	YPR – Prince Rupert, CDA
	UPG – Makassar, INA	YQM – Moncton, CDA
		YQR – Regina, CDA
		YSJ – Saint John, CDA

YTS – Timmins, CDA

YUL – Montreal, CDA

YVR – Vancouver, CDA

YWG – Winnipeg, CDA

YXC – Cranbrook, CDA

YXS – Prince George, CDA

YXT – Terrace-Kitimat,
CDA

YYB – North Bay, CDA

YYC – Calgary, CDA

YYJ – Victoria, CDA

YYZ – Toronto, CDA

YZP – Sandspit, CDA

YZR – Sarnia, CDA

ZAL – Valdivia, CHL

ZCL – Calera de Victor

Rosales, MEX

ZQN – Queenstown, NZ

ZUH – Zhuhai, PRC

1. Introduction to the project

The APEC Secretariat and Economies have observed that the flow of goods, services, capital and people in the APEC Region is constrained by air connectivity limitations and gaps that exist between the APEC economies, particularly between the Americas and Asia Pacific. Improving connectivity is a long-term target of the APEC economies. The APEC Tourism Working Group (TWG) and Transport Working Group (TPTWG) are particularly interested in pursuing this long-term target.

This Project (the “Project”) was proposed in 2014 by Thailand and co-sponsored by Australia; Indonesia; Malaysia; Peru; the Philippines; and Chinese Taipei and aims to develop air connectivity in the APEC Region and in turn stimulate a more efficient flow of goods, services, capital and people. The Project has the following objectives:

- To develop market demand-based recommendations for potential new routes, improved flight schedule connection times, and hubs between APEC economies based on analysis of air passenger flow, schedules and new aircraft range capability, including analysis of the number of seats, flights and air traffic.
- To help airlines and regulators develop more accurate demand predictions so they can in turn help APEC economies by providing better air connectivity services, capacity and schedules.

The Project was approved in December 2014, with IATA Consulting selected as the consultant in May 2015. IATA was mandated to complete the following tasks:

1. Develop market demand-based recommendations for potential new routes.
2. Provide recommendations to improve connections between flights at the main hubs linking the APEC economies.
3. Determine which APEC market-pairs could benefit from the introduction of new aircraft with extended range.

2. Approach followed and data used

This section explains the methodology applied by IATA and presents the data used to feed the various underlying analysis. To conduct the analysis, IATA took systematic steps identified in Figure 1.

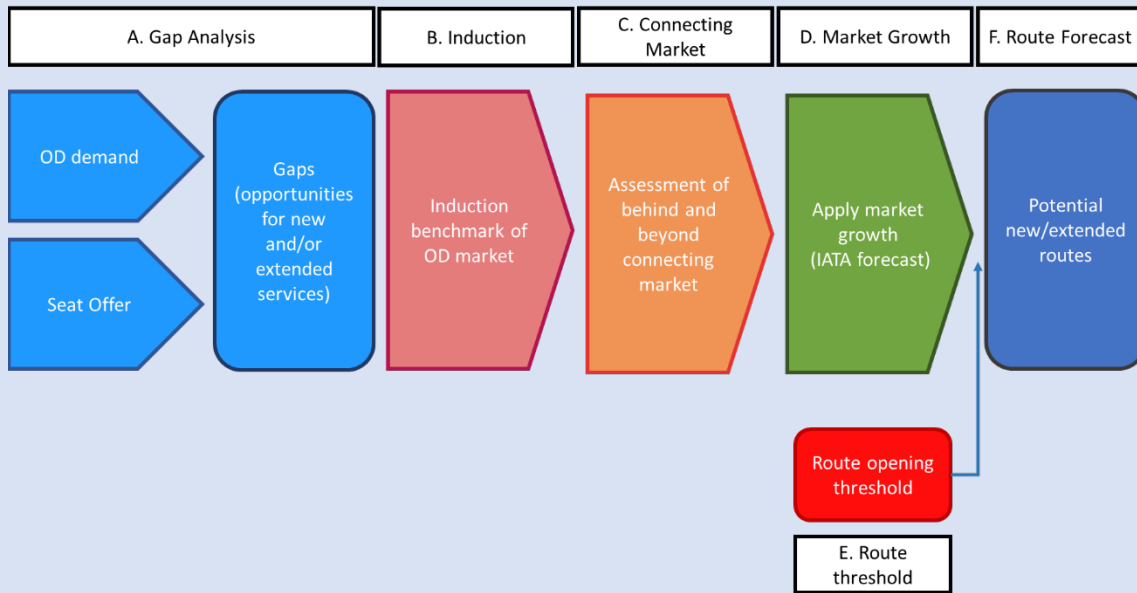


Figure 1: Process used to complete analytical work

The first step involved a demand-supply gap analysis aimed at identifying the unserved routes, presenting potential demand for future development. The size that this potential demand could actually represent if turned into direct service in the future was subsequently forecast, using realistic assumptions related to induction, connecting potential and demand growth.

2.1 Data fueling the model

Principal data for the model originates from Airport IS. IATA’s Airport IS system uses IATA billing and settlement plan data to provide detailed demand and supply information on total air traffic. This data has been available for over a 10-year historical period (since 2005).

Approximately 18,500 international APEC routes were analyzed in the execution of this study. Airport IS data was particularly relevant in the gap analysis and assumption development.

Academic articles and published ratios were also used to justify some of the assumptions, including induction and origin destination traffic captured through direct service.

For some of the other variables used in the final traffic determination, economic forecasts were extracted from IHS Global Insight, one of the world's largest commercially available economic databases.

Tourism data was extracted from the World Travel and Tourism Council.

2.2 Gap analysis

IATA applied a funnel approach in conducting the analysis. It first considered the market at the economy-pair level, followed by city pairs leading to a market potential assessment (see figure below). Both seat supply and seat demand were considered in the analysis to identify gaps in air service.

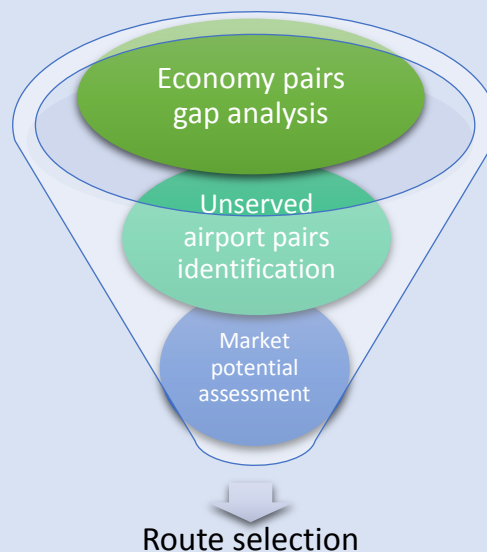


Figure 2: Funnel approach used to conduct analysis

The economy-pair analysis allowed IATA to identify unserved markets.

As an example, this analysis showed that there was an average daily demand of 427 Passengers Daily Each Way (PDEW) in 2015 that flew via existing connecting routings between Russia Federation and Thailand, while an average of 1,517 direct (on non-stop service) seats were offered daily each way.

When extending the analysis down to the city pairs, it was possible to identify the largest unserved markets between the two economies: 36 Passengers Daily Each Way (PDEW) travelled between VVO and HKT in 2015.

The top four unserved routes for Russia are presented in the table below.

Origin Airport	Origin Economy	Destination Airport	Destination Economy	2015 OD Demand (PDEW)	Non-Stop Seats in 2015	1-Stop Seats in 2015 (SDEW)
VVO	Russia	HKT	Thailand	36	-	-
VVO	Russia	BKK	Thailand	27	-	-
VVO	Russia	SIN	Singapore	9	-	-
HTA	Russia	PEK	China	9	-	34

Figure 3: Top 4 unserved routes from Russia, 2015 data

2.3 Induction

To determine realistic estimates of the success of new air service, various assumptions were considered and applied to current passenger demand.

Induction is a well proven concept that explains how new direct air service has a significant impact on increasing the total number of O&D passengers on a city-pair market. This is due to product improvement: shorter travel time, greater convenience and more affordable ticket prices. The extent to which the market will be stimulated varies based on current levels of service (price and flight frequency) offered on a particular route. As stated in the Successful Air Service Development presentation (ICF International, 2014) a market's first non-stop flight can stimulate demand by 100% to 300%.

IATA quantified this induction value to show a relationship between two primary factors: region pair and the size of the market before a new route is initiated.

The table below shows the stimulation rates considered for this analysis of Russia Federation. For some instances where inadequate data (less than 4 routes) to conduct a region pair analysis was available, other variables were considered, including the average of all routes, the average of long-haul routes or the average of short-haul routes, depending on the specific market.

Market	Base of 10,000 Annual Pax	Base of 25,000 Annual Pax	Base of 50,000 Annual Pax
All APEC Economies	130%	42%	18%
Long Haul	101%	36%	16%
Short Haul	150%	50%	21%
North America-North East Asia	80%	35%	19%
Asia - North East Asia	135%	55%	28%
South East Asia - North East Asia	170%		
China - North East Asia	155%	66%	35%
Within Northeast Asia	161%	61%	34%

Figure 4: Stimulation rates applied to the analysis

2.4 Connecting potential

Increasing the quality of connections through alliance agreements, codeshares, shorter journey times or fewer stops increases overall travel demand in connecting markets. It is a normal phenomenon for new routes to not only increase demand for the city pairs served but also for beyond and behind destinations that are now more easily accessible (Swan, 2008). On long-haul routes, typically two-thirds of the passengers will make a connection.

IATA's analysis found that connecting markets would stimulate at various rates depending on the region of origin and the hub airport being flown through. These ratios are applied in determining the impact of a new route on connecting flows.

Connecting rates to be applied in this project for flights connecting at the main Russian hub were estimated based on traffic from various APEC regions flying through VVO and the foreign hubs being flown to and from Russia Federation.

	VVO
Asia	6.8%
China	3.4%
North Asia	7.3%
Russia	7.9%

Figure 5: Average rate of connecting passengers at the hub airport in Russia to/from various APEC regions

	NRT	ICN/GMP	PEK	HKG	BKK
Russia	17.00%	56.30%	5.50%	20.40%	5.80%

Figure 6: Average rate of connecting passengers at selected main hubs to/from Russia

2.5 Demand growth

This refers to the consideration of the natural growth observed on a market segment. IATA Economics publishes a detailed inter- and intra-regional global traffic forecast. These demand growth forecasts were used to provide a regionally specific rate of growth to and from Russia between 2016 and 2018. Growth was typically seen to be around 5%. Demand growth also refers to the fact that approximately 80% of a market will choose a non-stop flight option if it is available (Belobaba, 2015).

2.6 Other

Other factors, including distance and available traffic rights, were used to refine the assessment of potential new service to be offered. Distance considers the feasibility of offering a non-stop flight with existing technology, using 15,000km as a maximum distance. Available traffic rights consider the bilateral agreements between economies and the current use of those bilateral rights.

2.7 Final route forecast

After conducting the gap analysis and applying the established rates from the various assumptions, the future market potential was estimated, as illustrated in Figure 7 below for the MNL-PER route.

Origin Airport	Destination Airport	Destination Economy	2015 OD Non-direct Demand	1 OD Captured Though Deirect Service	2 OD Stimulation	4 Behind/Beyond Connecting Potential	Calculations	
MNL	PER	Australia	(A) 68	(B) 80%	(C) 77%	(D) 20%		
				(1) 54	42		(1) = AxB	
				(2)			(2) = 1xC	
			Subtotal	(3)	96		(3) = 1+2	
			MNL - PER Total Market Potential (2015 Base)				(4) 119	(4) = 3/(1-D)

Figure 7: Example of the various assumptions being applied to determine the potential for a new air service.

3 Russia

A summary of Russia's economy and demographics, aviation demand and airport-specific information is presented in this section.

3.1 Economy and demographics

Russia is a sovereign economy in northern Eurasia. Russia is the largest economy in the world by land size, extending across the entirety of northern Asia and much of Eastern Europe. From northwest to southeast, Russia shares land borders with Norway, Finland, Estonia, Latvia, Lithuania, Poland, Belarus, Ukraine, Georgia, Azerbaijan, Kazakhstan, China, Mongolia, and North Korea. It shares maritime borders with Japan by the Sea of Okhotsk and the United States via Alaska across the Bering Strait.

3.1.1 Demographics

Russia is the world's 9th most populous economy with a population estimated at 143.4 million in 2016 (United Nation 2015). Population is densest in European Russia, near the Ural Mountains, and in southwest Siberia. Russia's population density is approximately 8.8 persons per square kilometer in 2016 (United Nation, 2015).

Russia is a diverse economy with over 185 ethnic groups. The 2010 census recorded 81% of the population as ethnically Russian, and 19% as other ethnicities: 3.7% Tatars, 1.4% Ukrainians, 1.1% Bashkirs, 1% Chuvashes, 11.8% others and unspecified. Russian is the only official state language, but individual republics have the right to establish their own state languages in addition to Russian.

Russia is one of the few economies with a negative population growth rate. The rate is forecasted to be -0.16% p.a. for the next 10 years. (United Nation, 2015)

In 2015, about 74% of the total population live in the urban areas. In the past five years, the rate of urbanization registered a -0.13% p.a. (Central Intelligence Agency, 2015). Major urban cities and populations include:

City	Population (millions)
1. Moscow	11.5
2. Saint Petersburg	4.8
3. Novosibirsk	1.5
4. Yekaterinburg	1.4
5. Nizhny Novgorod	1.3
6. Samara	1.2
7. Omsk	1.2
8. Kazan	1.1

Figure 8: Largest Russian cities (World Population Prospects, 2015)

3.1.2 Economy

Russia is one of the world's leading producers of oil and natural gas, and is also a top exporter of metals such as steel and primary aluminum. Russia's reliance on commodity exports makes it vulnerable to boom and bust cycles that follow the volatile swings in global prices. Services is Russia's biggest sector, making up of 63% of its GDP, followed by industry (27.6%) and agriculture (9.4%). In 2015, Russia ranked 12th in terms of economy size and 66th in terms of per capita income. GDP growth has been approximately -0.57% p.a. over the past three years (International Monetary Fund, 2016). The negative trend is due to the big recession in 2015 caused by a combination of falling oil prices, international sanctions, and structural limitations.

Russia's top export partners are the Netherlands, China, Italy, Germany, and Turkey. Main export commodities include petroleum and petroleum products, natural gas, metals, wood and wood products, chemicals, civilian and military manufactures. Russia's top import origins are China, Germany, the US, Italy, and Belarus. Main imports include machinery, vehicles, pharmaceutical products, plastic, semi-finished metal products, meat, fruits and nuts (Central Intelligence Agency, 2014).

Most economists expect that the downturn in 2015 will continue through 2016. Government support for import substitution has increased recently in an effort to diversify the economy away from extractive industries. Although the Russian Ministry of Economic Development is forecasting a modest growth of 0.7% for 2016 as a whole, the Central Bank of Russia (CBR) is more pessimistic and expects the recovery to begin later in the year and a decline of 0.5 to 1.0% for the full year. According to OECD, Russia's recovery will be only gradual against the backdrop of an uncertain external environment and

lack of structural reforms. Growth is projected to turn positive in 2017 as exports strengthen and domestic demand recovers.

3.1.3 Tourism

Russia, with its rich cultural heritage and great natural variety, is among the most popular tourist destinations in the world. The economy contains 23 UNESCO World Heritage Sites, with many others on UNESCO's tentative lists.

In 2014, Russia was visited by 32.4 million international tourists, making it the ninth-most visited economy in the world (World Bank, 2015). The number of international arrivals is expected to increase to 73.3 million by 2026, at an impressive 7% annual growth rate. In 2015, the travel and tourism sector approximately contributes (directly and indirectly) to 5.7% of GDP, and this percentage is expected to increase to 6.8% in ten years' time. (World Travel and Tourism Council, 2016).

3.2 Aviation demand

3.2.1 Recent demand growth

Passenger air traffic to and from Russia has grown at a rate of 9.6% p.a. between 2005 and 2014. This growth rate remains strong from 2009 until 2014 with approximately 20.4% annual growth rate. The economic downturn in 2015 is likely to affect the strong growth recorded in the past decade. According to Airbus (2015) forecast, air passenger market in Russia will be more than double in the next 20 years.

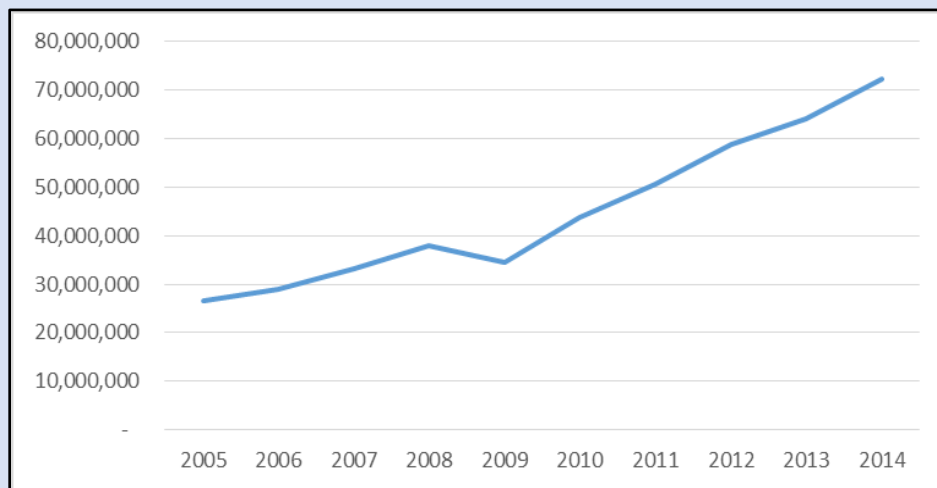


Figure 9: Total air traffic Russia 2005-2014 (Source: ICAO data, 2016).

Consumer Benefits

The aviation industry has benefits for visiting friends and family and the shipping of high value products. In 2015, a total of 104.7 million passengers and 441,303 tonnes of freight travelled to, from and within Russia by air (Airport IS 2016)

Aviation makes great contribution to economy through tourism. In Russia, over 20% of international tourists arrive by air, and this part of tourist spends approximately RUB97.7 billion (Oxford Economics, 2011).

Long-term impact

Economically aviation has a long term impact in Russia. According to Oxford Economics (2011), air travel enables long-term economic growth by:

- Opening up foreign markets to Russian exports;
- Lowering transport costs;
- Increasing the flexibility of labor supply;
- Speeding the adoption of business practices such as just-in-time-inventory management;
- Raising productivity and hence the economy's long-run supply capacity. It is estimated that a 10% improvement in connectivity relative to GDP would see an RUB28.7 billion per annum increase in long-run GDP for the Russian economy.

3.2.4 Government position on aviation

The aviation authority of Russia is in favor of aviation growth and continues to expand capacity of its existing international bilateral agreements.

The most recent agreement was reached between Russia and Spain in 2016. The two economies agreed to increase the number of designated carriers and frequencies on certain routes and discussed the prospects of expanding route network. Earlier, Russia expanded airline connection with other European nations—Germany and Cyprus—and Russia also agreed on liberalization of air travel with Iran. In 2013, Russia upgraded its air service agreement with the US with more liberal terms, and expressed a strong support for cooperation between the US and Russian airlines under code share arrangements, and informed the US delegation of the intention of a Russian airline to start fifth freedom operations on its services between Miami and Moscow.

3.3 Airport specific information

3.3.1 Busiest airports in Russia

While Russia's air passenger traffic is increasing at high speed, airport infrastructure, with the exception of the biggest airports, is underfinanced. The smaller airports were transferred to the regions which often cannot finance them properly and many were closed or face bankruptcy. Such outcomes are worrying for more distant regions, where there are no feasible alternatives to air connections. The existing regional and local subsidization system is non-transparent and ineffective and needs to be revised. However, several programs providing funding for socially important routes have been implemented recently.

Rank	Airport	Annual traffic statistics (2014 or 2015)	% of total Russian market
1	SVO	31,612,402	21.0%
2	DME	30,504,515	20.3%
3	VKO	15,697,331	10.4%
4	LED	13,499,755	9.0%
5	SVX	4,247,710	2.8%
6	OVB	3,703,211	2.5%
7	KRR	3,453,193	2.3%
	Other Airports	20,374,711	31.6%

Figure 11: Top 7 busiest airports by passenger number in Russia (Source: Albatross Airport, 2016).

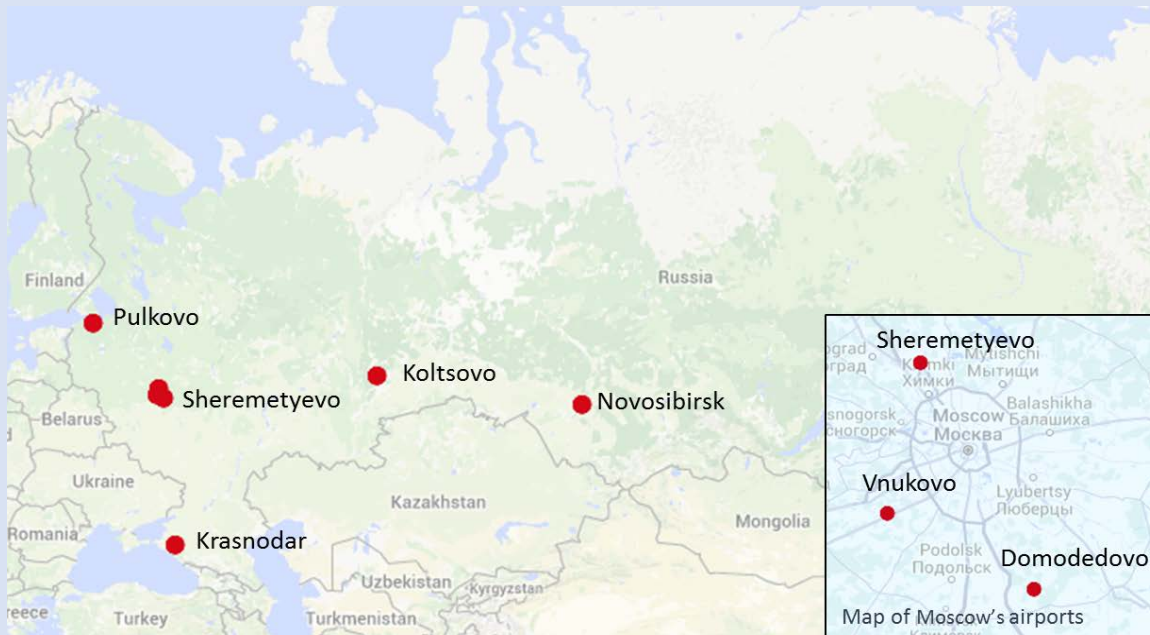


Figure 12: Map of Russia's busiest airports (Source: Google maps)

Sheremetyevo International Airport (SVO)

Sheremetyevo International Airport is located 29km northwest of central Moscow. It is a hub for passenger operations of the Russian international airline Aeroflot, and is one of the three major airports that serve Moscow. In 2015, SVO served 31.6 million passengers, making the airport currently largest airport in Russia since 2015. The airport has two runways, four operating passenger terminals and one special terminal reserved for the use of private and business aviation.

Moscow Domodedovo Airport (DME)

Moscow Domodedovo Airport is an international airport located 42 kilometers south-southeast from the centre of Moscow. It is the largest airport in Russia and the former USSR in terms of passenger and cargo traffic; 33,039,531 passengers used the airport in 2014, compared to 30,504,515 passengers in 2015, a decrease of 7.7%. DME serves as hub for Globus Airlines, Red Wings Airlines, RusLine, S7 Airlines, Ural Airlines, VIM Airlines, and Yamal Airlines. It has two runways and one terminal building comprising two separate concourses for domestic and international flights, respectively. The terminal is currently undergoing extension; by completion the total area of the passenger terminal will increase by more than double to nearly 500,000 square meters.

Vnukovo international airport (VKO)

Vnukovo international airport is an international airport located 28 kilometers southwest from the centre of Moscow, Russia. It serves as hub for Gazpromavia, I-Fly, Pobeda, Rossiya and UTair Aviation. In 2015, the airport handled 15.7 million passengers, being the third-busiest airport in

Russia in terms of passenger number. VKO has two passenger terminals, one general aviation terminal (for charter and business flights), one cargo terminal. The airfield has two intersecting runways.

Pulkovo Airport (LED)

Petersburg Pulkovo Airport is an international airport serving Saint Petersburg, located 23km south of the city centre. The airport serves as a hub for Rossiya Airlines, and as focus city for Nordavia. In 2015, LED served 13.5 million passengers. It consists of one terminal and two runways.

Koltsovo Airport (SVX)

Koltsovo Airport is the international airport serving Yekaterinburg, located 16km southeast of the city. The airport is a hub for Ural Airlines, RusLine and Aviacon Zitotrans. Due to its location in the centre of Russia, SVX is included in the "Priority Airports" list of Russia's Federal Air Transport Agency (Rosaviatsia). It consists of two terminals and two runways.

Novosibirsk Airport (OVB)

Novosibirsk Tolmachevo Airport is situated 16km from the centre of Novosibirsk, an industrial and scientific center in Siberia and Russia's third largest city. It serves as a hub for Angara Airlines, Globus Airlines, NordStar and S7 Airlines. Serving 3.7 million passengers in 2015, OVB is the busiest airport in Siberia and the sixth busiest airport in Russia. There are two active runways, along with one passenger terminal and two cargo terminals in the airport.

Krasnodar Airport (KRR)

Krasnodar Airport is an international airport, and is located 12km east of the centre of Krasnodar city. It is the main airport serving the southern Russian city of Krasnodar. In 2015, it handled more than 3.4 million passengers. It is the hub for Yakutia Airlines. KRR has three runways. Krasnodar International Airport is currently undergoing revamp that is divided into two parts: construction of a new 60,000m² airport building, scheduled to be completed in 2017, and the modernization of the aerodrome infrastructure.

3.3.2 Principal airline operators

Russia's five top airlines include Aeroflot, S7 Airlines, UTair Aviation, Ural Airlines and Pobeda. In 2015, the five airlines reported a market share of 61.4%.

Aeroflot

Aeroflot is the flag carrier and largest airline of Russia. The carrier operates domestic and international passenger and services, mainly from its hub at SVO. The airline commenced service in 1923 and joined SkyTeam in April 2006. The Aeroflot fleet comprises of 172 aircrafts.

The only international APEC destination it serves is the United States.

S7 Airlines

S7 Airlines is an airline headquartered in Novosibirsk Oblast, Russia. S7 is Russia's largest domestic carrier and its hubs are at DME and OVB. It was founded in 1992, and is now a member of Oneworld. It operates a fleet of 60 aircrafts.

International APEC destinations it serves are China and Thailand.

UTair Aviation

UTair Aviation is a Russian airline with its head office at HMA, while its main base is at TJM near Tyumen. It operates scheduled domestic and some international passenger services. It commenced serve in 1967, and now has a fleet of 64 aircrafts.

It has no international service to APEC regions.

Ural Airlines

Ural Airlines is based in Yekaterinburg, operating scheduled and chartered domestic and international flights out of SVX. It commenced service in 1967, and now has a fleet of 35 aircrafts.

The only international APEC destination it serves is China.

Pobeda (DP)

Pobeda Airlines LLC is a Russian low-cost airline and a wholly owned subsidiary of Aeroflot. It is based at VKO, with secondary hubs in AAQ and AER. It operates scheduled services to domestic and international destinations. It commenced service in 2014, and now has a fleet of 12 aircrafts.

It has no international service to APEC regions.

4 Medium-term new route opportunities

This section is dedicated to explaining the potential future air service developments to and from Russia within the APEC region over the next three years. Service gaps, route traffic forecasts, and high-level feasibility analysis conducted are hereby presented.

4.2 Service gaps

As part of the process, air services to Russia were considered first at an economy-pair level.

4.2.1 Economy pair analysis

The following table outlines the supply and demand for air travel between Russia and other APEC economies. The data essentially shows the economy pairs where:

- non-stop service is sufficiently supplied (in green),

- air service is adequate but may need to be improved in the long term (in yellow), and
- air service is at a shortfall and should be improved in the medium term (in red).

Origin Economy	Demand (PDEW)	Non-Stop Seat Offer (SDEW)	One-Stop Seat Offer (SDEW)	Ratio of Demand to Supply
Australia (AUS)	5	0	0	*
Brunei Darussalam (BD)	0	0	0	*
Canada (CDA)	8	0	0	*
Chile (CHL)	0	0	0	*
People's Republic of China (PRC)	702	993	29	69%
Hong Kong, China (HKC)	73	129	0	57%
Indonesia (INA)	16	0	0	*
Japan (JPN)	151	191	0	79%
Republic of Korea (ROK)	399	845	0	47%
Malaysia (MAS)	7	0	0	*
Mexico (MEX)	1	0	0	*
New Zealand (NZ)	2	0	0	*
Papua New Guinea (PNG)	0	0	0	*
Peru (PE)	0	0	0	*
The Republic of the Philippines (PH)	13	0	0	*
Russia (RUS)	10,556	15,646	2,087	60%
Singapore (SGP)	15	0	0	*
Chinese Taipei (CT)	2	0	0	*
Thailand (THA)	355	308	35	104%
United States (US)	62	0	0	*
Viet Nam (VN)	19	0	0	*

Figure 13: Total demand-to-supply ratio PDEW (Source: IATA analysis of Airport IS Data)

- * Delineates an economy pair with no air services that has inadequate demand to consider air services in the long term
- ** Delineates an economy pair with no air services that may have adequate demand for service in the long term (next 10 years)

Typical ratios found in highly liberalized international markets with adequate capacity for demand ranges from 60% to 80%.

Where demand-to-supply ratios are higher than 80%, seat offer should be increased between economy pairs (e.g. Between Russia and Thailand). Despite the high demand, the traffic between Russia and Thailand are heavily focused on BKK and HKT where there are already direct services in place. Other holiday destinations like PYX, KBV and CNX are very well served by charter flights chartered by tour operators from Russia. Given the above analysis, there is a case for frequency increase into BKK and HKT, but no immediate new route opportunity is identified for Russia to other APEC economies. However, IATA would recommend Russia to continue to monitor the market evolution and reassess new air service opportunities on a regular basis.

Charter flights are an important segment in Russia carrying both inbound and outbound tourists. While the analysis for charter flights is not included in the scope of this study, IATA suggests Russia to conduct further studies into the charter flights market to obtain a holistic picture of the aviation demand.

5 Conclusions and opportunities

Other opportunities for air service development such as connectivity improvement, route frequency increases, and long-term developments are also presented.

5.2 Connectivity improvement

This section identifies poorly connected markets that could be better served by Russia's major hub by improved connecting times, hence granting additional access to already existing yet less accessible connecting markets.

Most of the flights to and from APEC economies are concentrated at SVO. Therefore, IATA examined flights departing to and from there. Based on optimal connecting time-related considerations, IATA developed a series of suggested improvements pertaining to certain flight schedules to and from the airport. Suggested improvements are listed below.

- Aeroflot flight 271 currently arrives at SVO at 15:50 but the arrival time will not allow onward connections to five Russian domestic cities, namely AER, KRR, LED, ARH, and KGD. Should Aeroflot flight 271 be able to arrive 55 minutes earlier at 14:55, it will enable connections to these five cities.
- Similarly, if Aeroflot flight 275 from HKT can arrive 55 minutes earlier at 15:55, it will allow onward connections to RTW, ROV, LED, SIP, KUF, STW, and AER.
- China Eastern flight 5009 from Xi'an is currently arriving at 17:00 and will miss some onward connections with Skyteam partner Aeroflot.

- For the Aeroflot flight 212 to HKG, should the departure time delay by 40 minutes to 20:00, it will allow connections from Sochi and LED.
- Postponing the departure time of Aeroflot flight 106 to Los Angeles by 60 minutes will enable connections from 12 domestic cities in Russia, namely KGD, KZN, ROV, VOZ, NBC, SVX, UFA, STW, CEK, KRR, KUF, and ASF.

5.3 Development of aircraft technology

The latest aircraft available on the market, Airbus' A350-900 and Boeing's B787-9, are capable of flying ultra-long-haul routes. The technical capabilities of these aircraft will allow new direct routes to be operated between APEC economies across the Pacific. The following map illustrates the range limit¹ of the A350-900 and B787-9.



Figure 14: Range limit for the latest generation of aircraft from Moscow (Source: GCMaP)

¹ For illustration only. Based on published range for the base model of each aircraft type. Specific operating conditions may affect the range of the aircraft.

6 Recommendations to improve air connectivity

The various recommendations to improve air connectivity both generically and specifically for each APEC member economy are presented in this section.

6.2 Generic recommendations

This chapter provides recommendations applicable to all economies, such as greater liberalization of air routes by allowing more access and the elimination of curfews and operational restrictions.

- Continue to liberalize the air services market to other APEC economies allowing the fullest access to Russian airports.
- Encourage airlines to explore the opportunities on the ultra-long-haul market when they take delivery of new generation of long-haul aircraft.
- Continue to encourage central and municipality governments to invest into airport infrastructure to improve the overall air connectivity of the economy.

6.3 How the APEC economy's regulator can help?

- Work closely with different stakeholders, for example the Federal Agency for Tourism of Russia, the Chamber of Commerce and Industry of Russia, etc., to gain a deeper understanding of the development of the aviation demand.
- Ensure that the major international airports have an adequate investment and improvement program to cater for future traffic demand.
- Explore the possibility of relaxing visa requirements for tourists.
- Continue to liberalize the air services market and allow fuller access for foreign carriers in Russia and vice versa for Russian carriers to serve other economies.
- Reduce Passenger Movement Charge on international air passengers.

7 Appendix

7.2 Overview of IATA and IATA Consulting

7.2.1 IATA

IATA – The International Air Transport Association was founded in 1945 as the prime vehicle for inter-airline cooperation in promoting safe, reliable, secure and economical air service for the benefit of the world’s consumers. IATA is fully committed to supporting the commercial aviation industry’s stakeholders and governments in their efforts to achieve profitability and long-term viability.

IATA’s mission:

- To represent, lead and serve the airline industry.

IATA’s vision:

- To be the force for value creation and innovation, driving a safe, secure and profitable air transport industry that sustainably connects and enriches our world.

IATA in numbers:

- 250+ member airlines
- 83% of total air traffic
- \$387B processed by IATA financial systems
- 1,400+ employees
- 54 offices in 53 countries

7.2.2 IATA Consulting

IATA Consulting overview

IATA Consulting has comprehensive experience in the full array of business challenges facing the aviation sector. Serving the airline industry for 70 years, IATA has developed unrivalled practical experience, which we bring forth to provide the best solutions to our clients.

With our depth and breadth of aviation industry experience, we assist clients to maximize the value of their operating model, realize growth ambitions and gain insights that translate into sustainable competitive advantages.

IATA Consulting has expertise in the following areas:



SAFETY & FLIGHT OPERATIONS

Solutions for aviation organizations and airlines to improve safety, efficiency and air transport management.



ENVIRONMENT & ECONOMICS

Solutions for fulfilling the vision of a safer, more competitive and sustainable aviation industry.



AIRLINES

Solutions to achieve real and lasting results in every aspect of airline commercial and operational management.



AIRPORTS, PASSENGERS & SECURITY

Solutions to plan your airport efficiently to avoid costly mistakes and profit from untapped opportunities.



GROUND HANDLING & CARGO

Solutions to optimize your operations and improve your safety and security while reducing costs.

Our Clients

IATA Consulting has successfully demonstrated its capabilities by providing airlines, airports, tourism offices and other organizations with accurate, unbiased and reliable high quality information and analysis to help them define and understand their markets, while ensuring their long-term facility development and financial success.

IATA is trusted by multiple clients all over the world including airlines, airports, governments and aviation institutions.

400+
projects since 2006

200+
clients

80+
countries



Why IATA Consulting was chosen for this project

IATA has, over time, recruited and retained some of the most highly experienced and capable aviation consulting resources within the aviation industry. Due to its position at the heart of the industry, IATA has access to exceptionally skilled and informed subject matter experts and specialists. IATA Consulting’s objective is to make a positive difference in its clients’ performance, while delivering quality services to all industry stakeholders.

IATA Consulting provides its customers with vast knowledge and expertise in all sectors of the industry worldwide. Our approach has been finely tuned to leverage IATA’s global presence and industry thought leadership position in the development of tailored solutions that fit with local cultural considerations and embody international best practices. Our consultants rely on international state-of-the-art standards, unmatched access to data, and products and expert resources to provide cost-efficient and highly informed solutions.

IATA is backed by a robust set of decision support tools, Airport IS and Pax IS have been essential to undertake this study.



Airport IS and **Pax IS** are the most comprehensive aviation databases available in the marketplace, capturing 100% of traffic around the world and bringing together total market supply and demand under a single platform. The data provided is accurate and reliable as it is captured through IATA’s Billing and Settlement Plan (BSP).

Bibliography

- Albatross Airport. (2016). Retrieved from World Airports Traffic Report: <https://www.airport-information.com/data>
- Airport Intelligence Services. (2016). *Airport IS reports*. Retrieved from <https://airport-is.com/ais/siteMenu.jsp>
- Belobaba, P. (2015). *The Global Airline Industry*. Wiley Publishing.
- Central Intelligence Agency . (2016). *The World Factbook: Russia*. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/geos/rs.html>
- ICF International. (2014). *Successful Air Service Development*.
- International Monetary Fund. (2016). *List of per capita nominal GDP for countries and dependencies*. Retrieved from <http://www.imf.org/external/index.htm>
- Oxford Economics. (2011). *Economic Benefits from Air Transport in Chinese Taipei*. Retrieved from [https://www.iata.org/policy/Documents/Benefits-of-Aviation-Chinese Taipei-2011.pdf](https://www.iata.org/policy/Documents/Benefits-of-Aviation-Chinese-Taipei-2011.pdf)
- Swan, W. (2008). *Forecasting Air Travel with Open Skies*. Retrieved from Seabury Airline Planning Group: www.sauder.ubc.ca/.../Forecasting%20Asia%20Open%20Skies.ashx
- United Nation. (2015). Retrieved from <https://esa.un.org/unpd/wpp/DataQuery/>
- World Travel and Tourism Council. (2016). *Travel and Tourism Economic Impact*. Retrieved from <http://www.wttc.org//media/files/reports/economic%20impact%20research/countries%202016/russianfederation2016.pdf>

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