North Atlantic FIR Traffic Forecast

Presented By: United States

Update: ICAO NAT EFFG, April 2017

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EFFG NAT Traffic Forecast – A Collaborative Effort

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Description of Forecast Methodology

- **The new twenty year forecast is composed of two parts**
  - **Near-term projection for the first 5 years**
  - **Long-term portion that forecasts 6 to 20 years into the future**
- **The near-term portion (first five years) of the forecast is**
  - **Based on carrier fleet order books**
  - **Reflects decisions about network and fleet changes by 45 airlines including Middle East carriers and Low Cost Carriers (LCCs)**
  - **Reflects input from operators and key stakeholders**
- **The long-term portion of the forecast**
  - **Reflects traffic growth for the following 15 years**
  - **Consists of a central, low, and high growth rate**
- **At the NAT SPG/52 meeting the SPG endorsed the dissemination of the NAT EFFG Traffic Forecast**

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Changes from NAT EFFG Forecast Version 1 Methodology

- The previous forecast included 53 airlines which were dropped due to low activity in the NAT, went out of business, or were mostly unscheduled service
  - Airlines dropped: UPS, FedEx, Transaero (out of business), Bristow Helicopter, CHC Helicopter, SATA Air
  - Rouge and Air Canada are grouped together since they are reported as a single carrier in published schedules
  - Air Iceland is grouped with Icelandair as it is a contract carrier for Icelandair

- A baseline of routes was originally created using flight data reported by the ANSPs. This new version uses scheduled data from Innovata
  - NAT city-pairs selected from schedules filtered through a trajectory modeler
    - The model assigns routes to city pairs based on great circle distance and determines if the route traverses any of the FIRs
    - Helps avoid issues with wind pattern variations and provides consistency between forecasts
  - ANSP data used to determine the probability distribution of flights within each FIR

- The Fratar method used to create an OD matrix replaced with a targeted approach
  - The top 25 city pairs (non-directional) were selected for each of the carriers and flights were added/removed specifically to those pairs

Near-Term Five-Year Forecast Methodology: Data

- **FIR Set:**
  - **New York, Gander, Shanwick, Santa Maria, Reykjavik, Bodo, and Sondrestrom**
- **Carrier Set:**
  - **Forty-Five carriers (covering ~ 80% of traffic in each FIR)**
  - **Includes four major Middle Eastern carriers and low cost carriers with significant growth potential**
  - **About 15% of all NAT traffic are operated by LCCs and expected to grow**
- **Fleet Information**
  - **Sources for equipment inventory, orders, and retirement plans**
    - **Boeing and Airbus order books**
    - **Carrier websites**
    - **Publicly available financial documents**
    - **Public news announcements**
- **Fleet Utilization**
  - **Flight data obtained from schedules used to determine aircraft utilization**
  - **Focused on peak week scheduled data for July 15-21, 2016**

15-Year Long-Term Forecast (beyond Near-Term Forecast)

The long-term forecast branches into high, central and low forecasts from the end of the near-term forecast

Sources	AAGR from 2014 to 2034	AAGR from 2020 to 2030	AAGR from 2010 to 2030	AAGR from 2020 to 2035
IATA	2.6%	2.0%	3.0%	2.0%
Boeing	3.0%			
Airbus	2.8%			
ICAO (FESG CAEP/9) High Scenario		4.7%	4.7%	
ICAO (FESG CAEP/9) Central forecast		3.8%	3.9%	
ICAO (FESG CAEP/9) Low Scenario		3.0%	3.1%	

Summary of Long-Range (2020-2035) North Atlantic Passenger Growth Forecast	
High	4.7%
Central	3.0%
Low	2.0%

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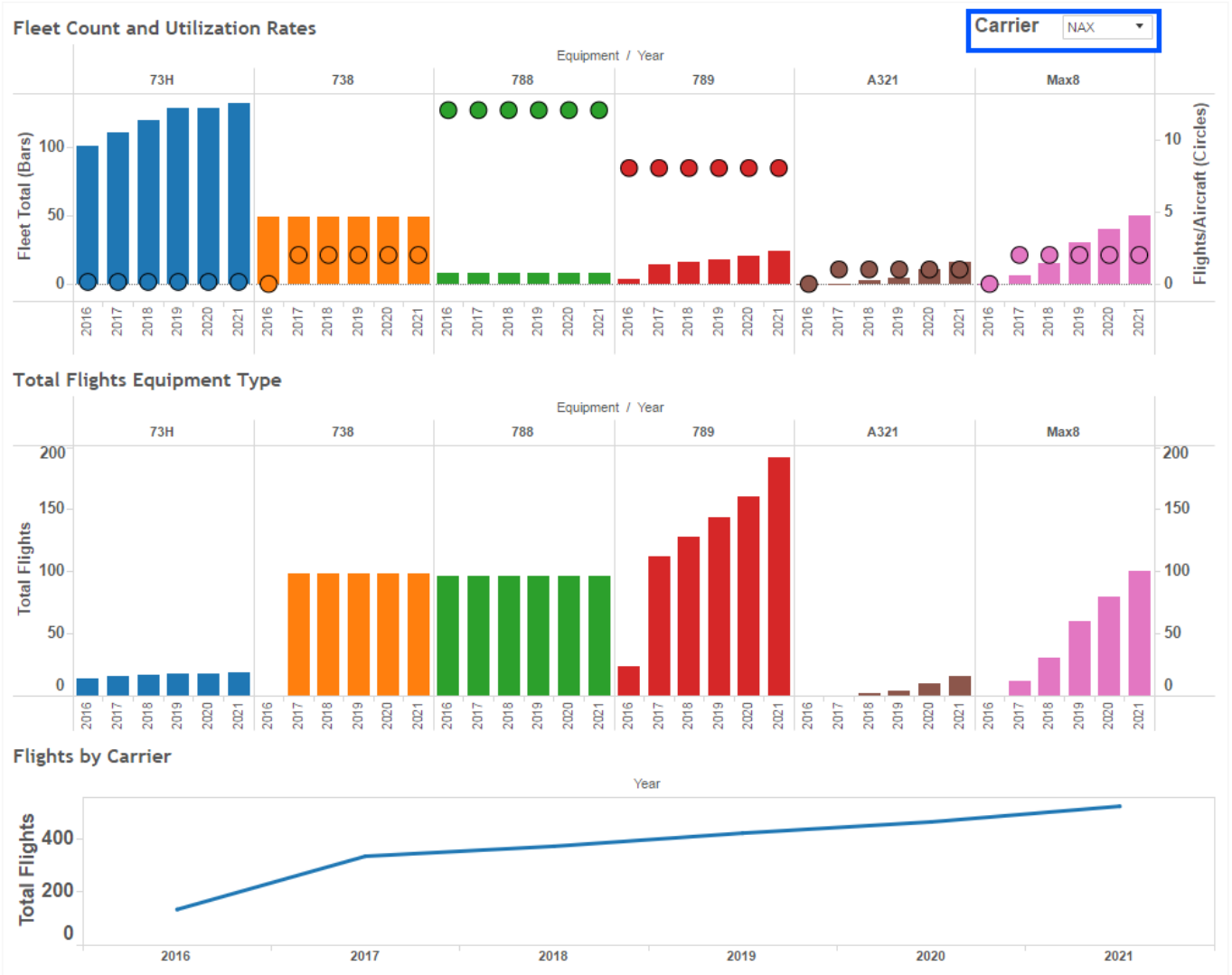
Weekly Scheduled Flights by Carrier

			HISTORICAL					FORECAST					
Row #	Carrier Name	Carrier	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Rank Order by Growth
1	Delta Airlines	DAL	1,048	1,081	1,079	1,160	1,192	1,202	1,220	1,259	1,283	1,348	10
2	United Airlines	UAL	1,092	1,060	1,073	1,126	1,124	1,090	1,100	1,140	1,228	1,288	7
3	American Airlines	AAL	912	882	940	924	910	915	912	950	995	1,087	5
4	British Airways	BAW	798	842	880	870	878	835	843	848	880	904	32
5	Icelandair	ICE	417	452	522	582	734	754	795	805	846	882	11
6	Air Canada	ACA	434	436	479	554	648	667	692	718	718	732	16
7	Lufthansa	DLH	579	597	604	608	630	617	609	642	664	674	25
8	Air France	AFR	530	534	540	540	544	552	575	612	634	669	12
9	Virgin Atlantic	VIR	296	304	306	366	368	376	388	410	437	448	18
10	KLM	KLM	302	308	320	326	336	337	360	344	374	357	35
11	Aer Lingus	EIN	174	198	234	268	295	318	332	336	340	340	24
12	Air Transat	TSC	296	272	271	270	276	276	276	276	276	276	42
13	Iberia Airlines	IBE	244	216	232	252	271	270	271	291	341	342	19
14	United Emirates	UAE	118	120	155	208	254	275	288	319	371	419	6
15	WOW Air	WOW	0	0	108	146	234	351	432	432	432	432	3
16	Ryan Air	RYR	142	170	214	214	226	280	294	301	338	425	2
17	Turkish Air	THY	92	106	130	146	198	214	222	224	224	224	31
18	Air Berlin	BER	116	132	134	140	178	211	211	210	210	210	28
19	Scandinavian Airlines	SAS	106	118	126	142	176	179	187	198	201	214	27
20	Swiss Air	SWR	148	148	150	162	176	172	183	179	177	176	45
21	Thompson	TOM	142	140	152	167	172	197	208	215	215	220	23
22	Thomas Cook Airlines	TCX	86	76	80	95	153	157	157	157	157	157	41
23	Condor	CFG	102	108	116	132	138	160	160	160	160	160	33
24	Norwegian Air	NAX	6	18	92	100	134	333	371	420	462	520	1
25	Alitalia	AZA	138	132	122	126	132	132	132	132	132	132	42
26	Air Europa	AEA	102	94	94	104	118	148	172	195	216	278	9
27	Jet2	EXS	38	50	80	78	104	118	142	156	164	168	20
28	Etihad Air	ETD	34	48	76	96	102	100	136	176	219	294	4
29	WestJet	WJA	0	0	14	28	84	92	94	144	176	248	8
30	Air Caraibes	FWI	56	64	62	64	76	86	116	136	136	136	21
31	TAP Portugal	TAP	40	42	58	50	72	85	90	94	95	104	29
32	Avianca	AVA	42	50	54	70	70	84	109	109	134	160	15
33	Aeroflot	AFL	54	74	72	62	66	80	99	118	139	170	14
34	Polish Airlines	LOT	56	60	60	60	64	77	93	111	129	147	17
35	EasyJet	EZY	24	36	46	66	64	69	76	88	100	106	26
36	SATA International	RZO	38	44	52	48	50	60	60	60	65	80	30
37	Air India	AIC	28	42	42	42	42	48	59	59	59	59	36
38	Royal Air Maroc	RAM	30	26	38	32	40	50	56	56	56	56	37
39	Air Greenland	GRL	30	34	32	28	32	37	37	37	37	37	40
40	Qatar Airways	QTR	58	74	110	118	30	30	30	60	108	150	13
41	Finnair	FIN	28	28	20	26	30	45	66	72	81	81	22
42	Atlantic Airways	FLI	10	12	18	16	24	24	24	24	24	24	42
43	TAM Airlines	TAM	20	20	18	14	14	13	20	27	31	35	34
44	jetBlue	JBU	0	0	0	0	0	0	3	6	8	15	38
45	Southwest Airlines	SWA	0	0	0	0	0	0	3	7	10	13	39
46	Scheduled Others	Oth	1,133	1,138	1,007	937	1,223	1,397	1,397	1,397	1,397	1,397	
	Total		10,139	10,386	11,012	11,563	12,682	13,515	14,099	14,709	15,480	16,392	
	Yr-Yr %Change			2.4%	6.0%	5.0%	9.7%	6.6%	4.3%	4.3%	5.2%	5.9%	
	5-Year %Change										29.3% Total 5-Yr Growth		
	5-year Yr-Yr %Change										5.3% Avg Yr-Yr Growth		

- **Scheduled flight counts for peak week of July 15 – July 21**
  - **Historical: 2012-2016**
  - **Short-Term forecast: 2017-2021**
- **Carriers sorted by total scheduled flights in 2016**
  - **Three legacy US carriers (DAL, UAL, AAL) top the list with most NAT flights in 2016**
  - **British Air, Icelandair, Air Canada, Lufthansa, and Air France are top non-US NAT carriers**
- **Rank order indicates a carrier's growth potential in five years**
  - **Top three fastest growing carriers include Norwegian Air, Ryan Air, and WOW Air**
  - **Legacy US carriers rank 5th (AAL), 7th (UAL), and 10th (DAL) in growth**

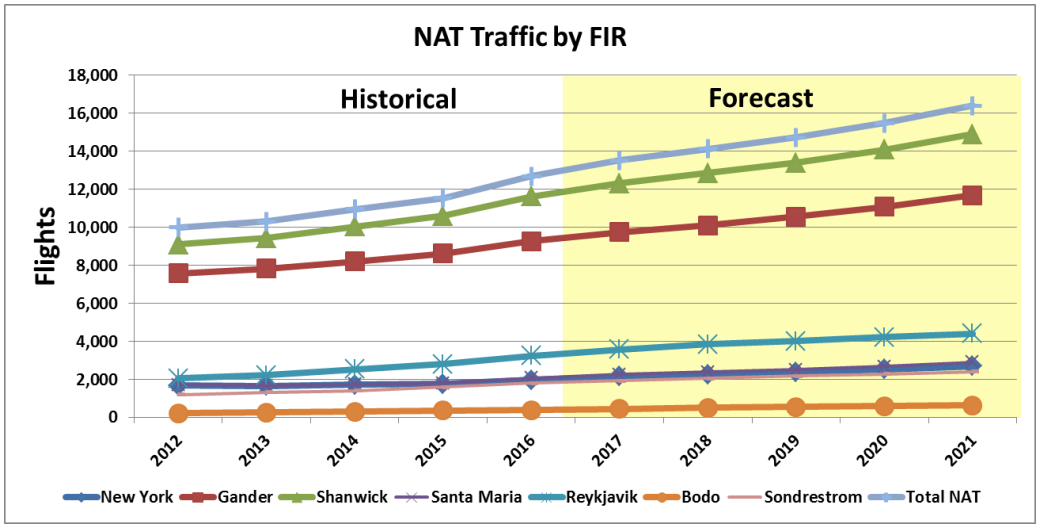
Tableau Dashboard: NAT Fleet and Utilization Rates

https://public.tableau.com/views/NATShort-TermForecast2016-2021_MainPage/Fleet_Info?:embed=y&:display_count=yes



Peak Week Historical and Near-Term Forecasted FIR Operations

Average annual growth of 5.3% is projected for total Trans-Atlantic operations from 2016 to 2021

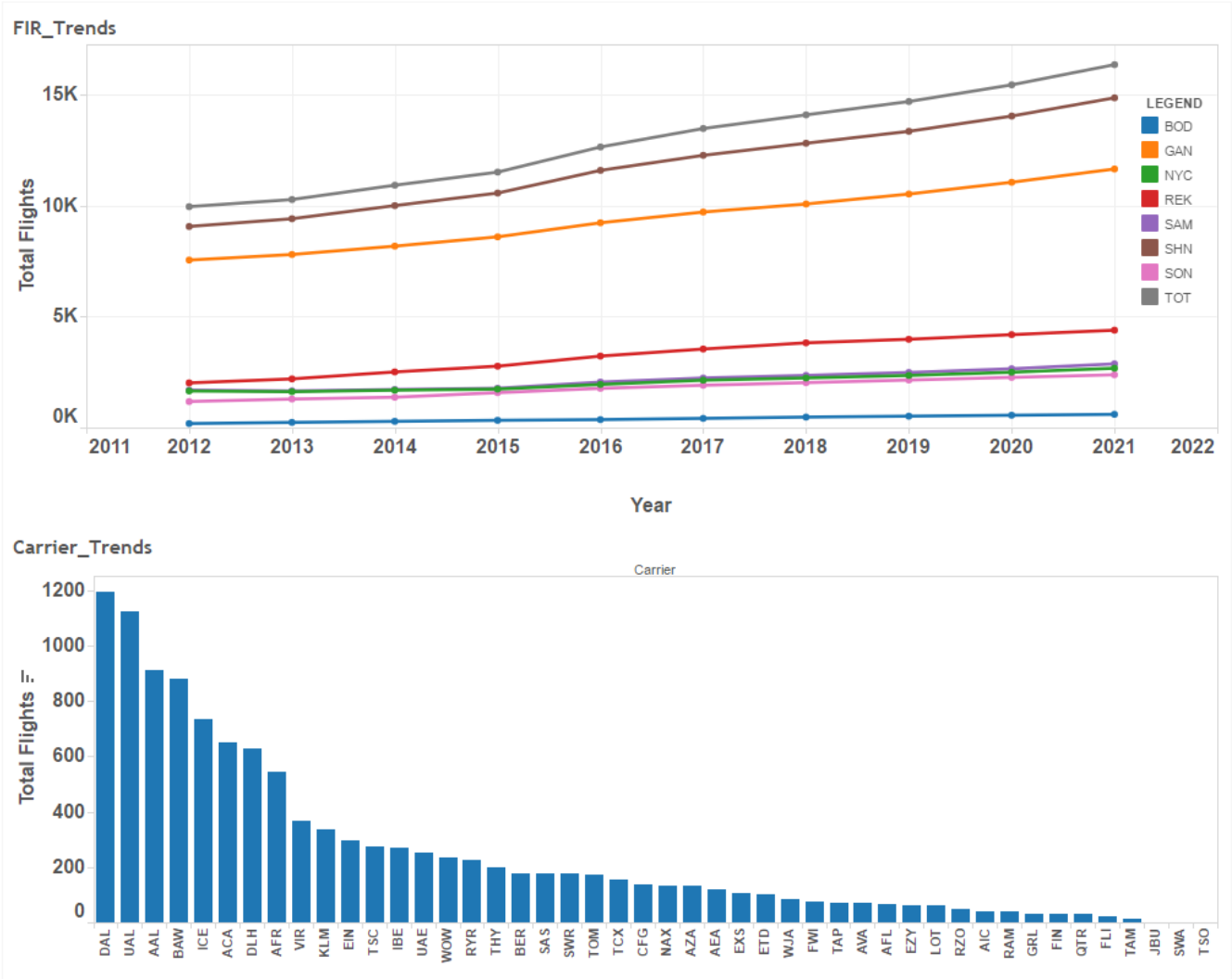


Average Yearly Growth Rates by FIR		
FIR	2012 – 2016 (actual growth rate)	5-Yr Projected
New York	4.1%	6.5%
Gander	5.1%	4.8%
Shanwick	6.3%	5.1%
Santa Maria	4.9%	6.9%
Reykjavik	12.3%	6.3%
Bodo	16.6%	10.1%
Sondrestrom	10.6%	6.0%
Total NAT	6.1%	5.3%

*Note that summing across FIRs does not provide total NAT operations for the carrier since a single flight can cross multiple FIRs.

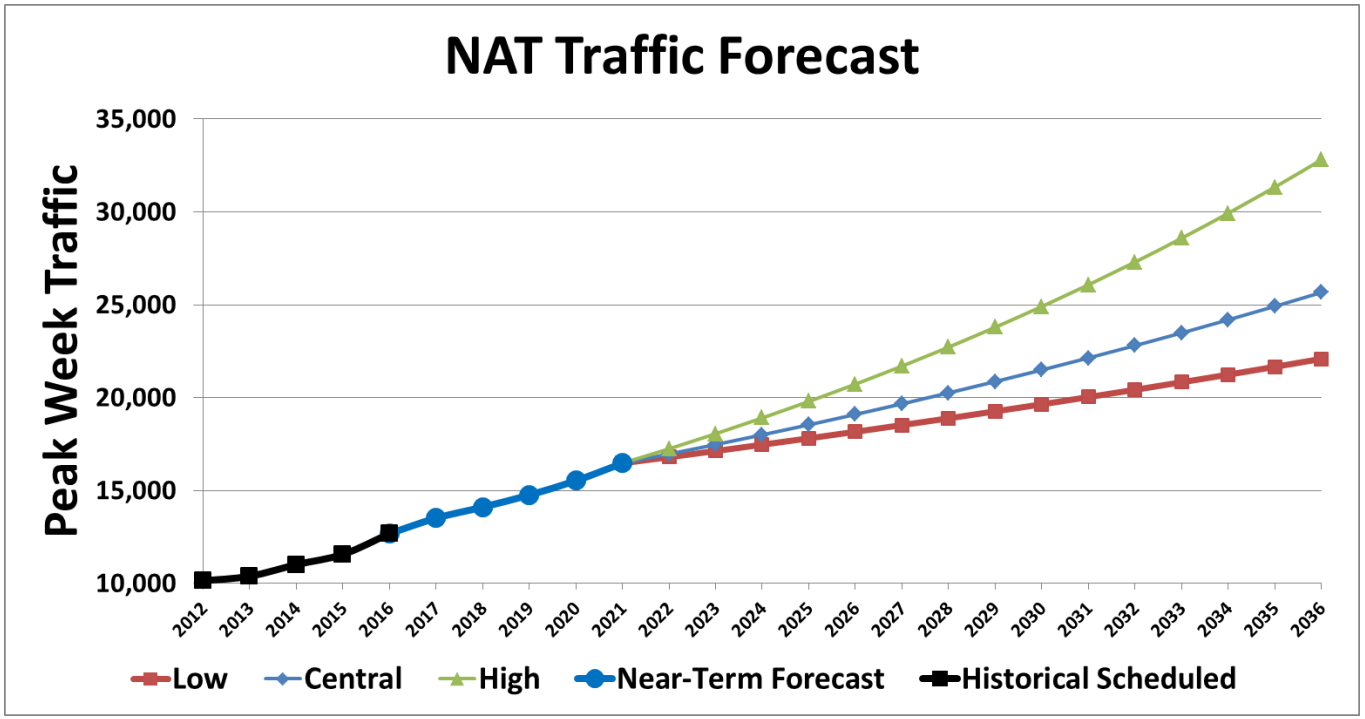
Tableau Dashboard: FIR and Carrier Flights

https://public.tableau.com/views/NATShort-TermForecast2016-2021_Page1/FIRCarrier?:embed=y&:display_count=yes



Peak Week Historical and Forecasted FIR Operations

Short-term growth rate is **5.3%** from 2016-2021 - up from 3.6% in previous forecast
Long-term growth rate is **3.6%** from 2016-2036 - up from 3.2% in previous forecast



Average Yr-Yr NAT Growth Rates			
	2012-2016 actual growth rate	2016-2021 short term projection	2016-2036 composite projection
High			4.8%
Central	5.8%	5.3%	3.6%
Low			2.8%

Incremental Growth

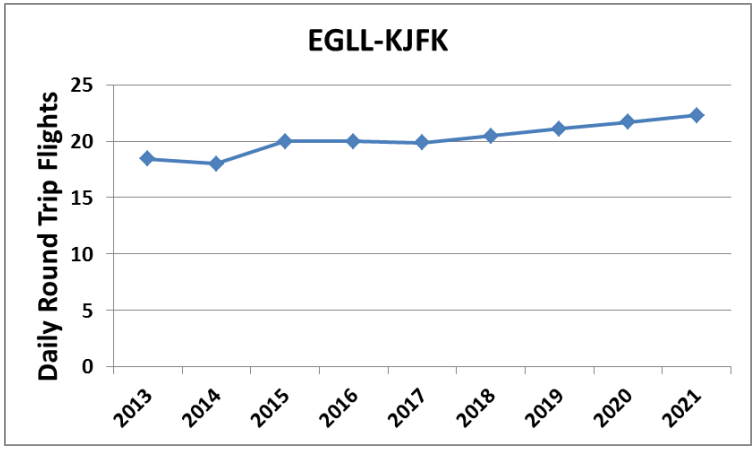
- **Norwegian Air projected as the fastest growing carrier in the NAT**
  - **Current order book adds 159 aircraft to their fleet made up of B789s, 737-MAX8s, and A321LRs**
  - **Their subsidiary, Norwegian Air International, is based out of Dublin which makes trans-atlantic routes possible with the MAX8s**
  - **Announced plans to fly into 3 US airports from Ireland and Scotland**
    - **Stewart Airport (SWF) [~70 miles from New York City]**
    - **Providence Airport (PVD) [~60 miles from Boston]**
    - **Bradley Airport (BDL) [~100 miles from Boston and New York]**
- **WOW Air expands with A321s and A330s on order**
- **Ryan Air expands with 100 MAX200s (launch customer)**
- **Middle East Carriers adding a combined total of 263 wide-bodies which include B777Xs, A380s, and A350s**

Game-Changing Aircraft and Capabilities

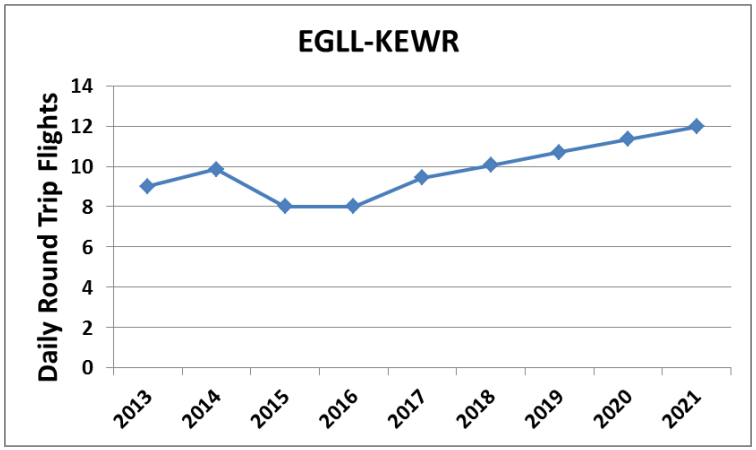
Model	Seats, 2-class	Range (nm)
A321LR	206	4,000
B737-Max 8	162	3,500
B737-Max 9	178	3,500
B737-Max200	200	3,000

City-Pair	Distance (nm)
Paris-New York	3,600
London-Montreal	3,200
Dublin-Montreal	2,900
London-New York	2,800
Dublin-New York	2,700
Dublin-Boston	2,600
Reykavik-Boston	2,400

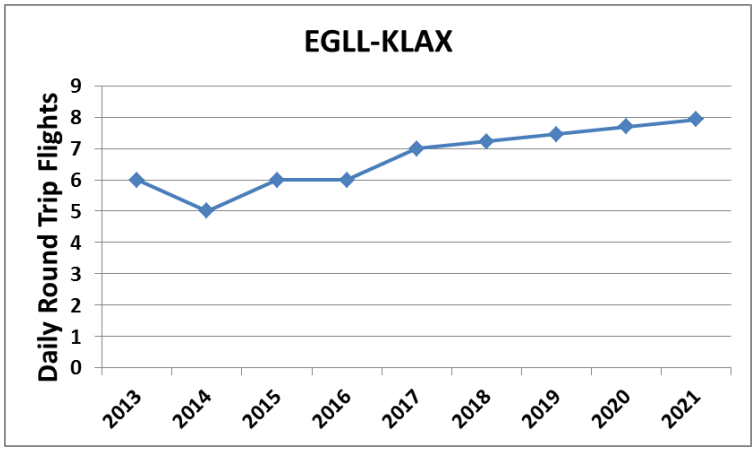
Near-Term Forecasts for Select City Pairs By Daily Round-Trips



EGLL-KJFK growth of 2 daily round trip flights (12% increase)



EGLL-KEWR growth of 4 daily round trip flights (50% increase)



EGLL-KLAX growth of 2 daily round trip flights (32% increase)

Risks to the Forecast

- **The forecast may seem aggressive relative to historical trends because it is a reflection of the aircraft delivery and retirement assumptions**
  - Uncertainty of some aircraft delivery dates drives the level of aggressiveness in the forecast particularly in year five (i.e. will all aircraft be delivered by year five or just a fraction?)
  - This forecast effort will continue reviewing aircraft delivery orders and expected retirements
- **Structural changes can cause significant changes in trends over time**
  - Middle East carriers and LCCs are anticipated to grow aggressively
  - Fuel price volatility can significantly affect carriers' plans and strategies
- **A conservative estimate of future operations is projected for Middle East carriers although their order books indicate potential for greater growth**
  - High uncertainty of which future markets they will serve
- **Current market level forecast method allows only aircraft that already serve a market to continue to serve it in the future**
  - Legacy carrier aircraft are not assigned new markets because we don't have information on where specific aircraft will be deployed in the future
- **Political climate and imposed travel restrictions can impede passenger demand**
- **The forecast for "Scheduled Other" carriers is constant after 2017**
  - Boeing and Airbus continue delivering aircraft and may impact the carriers not assessed in detail

Last Year's Forecasted vs. Reported Weekly 2016 NAT Traffic

- **Comparing 2016 projected to actuals from the '2015-2030 forecast' released last spring, the difference was only 0.2 percentage points**
  - **The comparison does not include "other" carrier flights because the set of "other" flights was inconsistently reported between 2015 actuals and 2016 actuals**

	2015 Actual	2016 Actual	2016 Forecasted	Actual % Change 2015 to 2016	Forecasted % Change 2015 to 2016
Select 53 Carrier	13,249	14,015	13,990	5.8%	5.6%

- **Causes for Variances**
  - **Helicopter operations present high uncertainty as an unscheduled service**
  - **Icelandair, WOW, and Norwegian Air more aggressive than in the past**
  - **WOW took delivery of additional aircraft after April 2016 forecast was finalized**
  - **Economic and Political Stability caused by Turkish coup, Terrorism, Brexit**
  - **Wind changes can affect FIR crossings for same OD pairs**
    - **Example: UAL flights KEWR - EGLL sometimes cross NY oceanic airspace**
  - **Fewer polar routes reported in 2015 data compared to 2016 (UAL and DLH)**

Legacy Carrier Response to Increased LCC Activity

- **“[The trans-Atlantic market] is still a very profitable entity for U.S. airlines, and I think it'll continue to be. It will probably just become less profitable." Joseph DeNardi, Stifel analyst**
  [“Delta, American, United Go Guns Blazing Into Battle Of The Atlantic”, Investors.com, February 2017]

- **Legacy carriers contending with ultra low fares by LCCs**
  - Norwegian offers $69 one-way fares from New York to London
  - WOW offers $400 round-trip flight from Boston to Berlin

- **Legacy carriers will respond aggressively**
  - "We are sensitive to anyone that's a competitive threat issue for us, and we will be aggressive about competing with all of them." United President Scott Kirby, responding to Air Canada's plans to add trans-Atlantic capacity.
  - "We don't intend to cede our position across the Atlantic to anybody.“ American Airlines Chief Marketing Officer

- **Legacy carriers banking on more cabin "segmentation" - or dividing up a plane's seats into more classes of service, from no-frills "basic economy" to higher-end offerings**
  - Although they sit in the main cabin, like other economy travelers, passengers can't pick their own seats
  - Face other restrictions on refunds, upgrades and what bags they can bring aboard
  - Are not guaranteed a seat next to the passengers they're traveling with.

- **Legacy carriers have greater name recognition, loyalty, and operational flexibility**
  - On a long-haul flight, little amenities and comforts tend to matter more because the same thing that people will tolerate for two hours won't necessarily do it for eight
  - Offer more flights, which gives them room to accommodate passengers if a flight gets canceled or a passenger's schedule changes. Low-cost rivals sometimes only offer one flight a day or less to a given destination

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Conclusions

- **In the near-term, 2016 – 2021, based on fleet analysis and business plans, NAT traffic is projected to grow 5.3% annually**
- **Contributing factors to first five years in the forecast**
  - **Rapid growth in NAT due to LCCs particularly Norwegian, Icelandair, RyanAir, and WOW**
  - **Large orders by middle east carriers Etihad, Qatar, and United Emirates**
  - **Long-Range capabilities of 737-MAX, 321-LRs, and 787s**
  - **Growth by legacy carriers expected to increase significantly from orders of A350s, A339s, B787s, A380s, and B777s**
- **Over the next 20 years, 2016 – 2036, NAT traffic is projected to grow 3.6% annually**