



CIRIUM

CIRIUM ON-TIME PERFORMANCE REVIEW 2019

The industry standard for on-time performance

Airlines and Airports

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Executive Summary

The Cirium On-Time Performance Review 2019 provides the definitive ranking of the world's most on-time airlines and airports by size and region, for the 11th consecutive year.

Designed by the world's leading authority on aviation on-time performance excellence, travel data and analytics expert Cirium, it raises the benchmark by encouraging airlines and airports to innovate and invest to ensure they provide customers with a best-in-class travel experience, both in the air and on the ground.

With over 600 unrivaled data sources, from almost every airline and airport around the world, Cirium tracks more than 100,000 flights per day. Using advanced technology, their dedicated team of expert data analysts process 15 million updates per day - 18 times more than the industry average - to ensure the most accurate results with multi-source verification.

The 2019 review revealed Russian carrier, Aeroflot, as the world's-and Europe's-most on-time global mainline airline with 86.68% of its flights arriving on-time. Japanese carrier All Nippon Airlines (ANA) came in second place with 86.26%. ANA and Japan Airlines (JAL) were both near the top despite suffering major disruptions from very damaging typhoons in September and October 2019. In fact, ANA's performance increased from 84.20% in 2018 to 86.26% in 2019. Last year's former winner, US-based Delta Air Lines took third place with 85.69%.

The most on-time global network airline was Latin American carrier LATAM Airlines with 86.67% of its flights arriving on-time. LATAM Airlines set the standard for most improved global networks in 2019. In 2018, LATAM Airlines ranked in tenth place in the Global Network category with an on-time performance of 79.99% and then climbed to the top of the list in 2019. LATAM Airlines' performance is even more impressive considering that the airline is reducing its scheduled block times to get more operating cycles out of its fleet.

Copa Airlines has again taken the premier place for mainline and network operations in Latin America for the sixth year in a row with an on-time performance of 92.16% for its mainline operations, an increase from 89.68% in 2018, and 92.27% for its network. With an on-time performance of 82.45% for mainline and network operations, Qatar Airways has maintained its position at the top of the league for the Middle East & Africa for its fifth consecutive year.

In North America, Delta Air Lines continued to demonstrate industry-leading on-time performance for the third year in a row. Delta Air Lines, the largest network carrier in the group by far, is earning business traveler loyalty with an excellent completed flight percentage of 99.36% across its network-a result of the success of its program to greatly reduce cancellations.

Executive Summary

ANA continued its streak of industry-leading operational performances by ranking first among Asia Pacific Mainline carriers in 2019. ANA had the highest on-time performance numbers across its Asia Pacific network in 2019 for the second year in a row with an on-time performance of 86.49%, increasing from 85.25% in 2018. Another win for the Asia Pacific region appeared in the Low Cost Carrier category. Japanese carrier StarFlyer topped the league of low cost carriers with 91.37% of its flights recorded as being on-time.

The On-Time Performance Review draws upon Cirium's expert data and analytics to track the on-time performance of airports and named Sheremetyevo International Airport (SVO) the most on-time airport globally and among large sized airports with 95.01% on-time departures. As for medium sized airports, Kaohsiung International Airport (KHH) with an on-time departure performance of 93.32% Koh Samui Airport (USM) was the most on-time small airport with an on-time departure performance of 95.08%.

Arriving on-time at a destination is becoming increasingly important to millions of both leisure and business passengers around the world every day. Therefore, the Cirium On-Time Performance Review 2019 is designed to inspire airlines and airports to continually innovate to improve their performance.

Cirium is proud to recognize the achievement of airlines and airports which consistently operate on-time and go that extra mile in an increasingly competitive environment.

Congratulations to the 2019 winners.



Jeremy Bowen
Chief Executive Officer
Cirium

The Cirium On-Time Performance Review celebrates the impressive achievements of the world's leading airlines and airports, whose dedication to improving the travel experience and driving their own commercial strategy has resulted in outstanding on-time performance results in 2019.

On behalf of Cirium, I would like to congratulate all the winners who have shown true commitment to improving operational performance and gone above and beyond for their customers, despite the many challenges faced by the industry.

This year we have enhanced and improved our On-Time Performance Review. This new report further improves the delivery of comprehensive, transparent and reliable on-time airline and airport data. It has been designed for clarity and continues our tradition of being the industry's go-to source of on-time performance results.

Cirium is highly trusted by the industry and with that trust comes responsibility. To enhance our credentials, we have appointed an independent board of advisors to ensure that our data is interpreted accurately, and we consistently adhere to defined metrics. This is a hugely important development for Cirium. We are not only building upon our long-established reputation as the experts in aviation and air travel data and analytics for businesses that surround travel, but also allowing independent oversight over our work. The addition of this governance is a testament to our commitment to the industry.

Thank you for your continued support for Cirium as the respected provider of on-time performance analysis for the industry.

THE NEW ON-TIME PERFORMANCE BOARD



Luis Felipe de Oliveira

Executive Director & CEO

ALTA (The Latin American & Caribbean Air Transport Association)

Luis Felipe de Oliveira has led the Latin American and Caribbean Air Transport Association (ALTA) since October 2017. A chemical engineer by training, he has decades of technical experience in the field of aviation fuel. Before joining ALTA, he was Vice President of Supply Development for Latin America and Caribbean at World Fuel Services,

and before then he spent 10 years at IATA, leading fuel and airport campaigns with governments, oil companies, fuel service providers and airports for the Americas, Africa and the Middle East. Since May 2019, he has served as a Board Member of the HERMES Air Transport Organization.



Henry H. Harteveltdt

President

Travel Industry Analyst Atmosphere Research Group

Henry H. Harteveltdt is one of the travel industry's most respected analysts. He started the Atmosphere Research Group – a San Francisco-based independent, objective travel industry market research and strategic advisory firm – in 2011, following a nearly-12 year career as Forrester Research's

global head of travel research. Before becoming an analyst, Henry spent more than 15 years in marketing, product, planning, PR, and distribution roles at a variety of leading travel firms, including Continental Airlines, Fairmont Hotel Management Company and GetThere.



Dr. Mario Hardy

Chief Executive Officer

Pacific Asia Travel Association (PATA)

Dr. Mario Hardy has been the Chief Executive Officer of the Pacific Asia Travel Association (PATA) since 2014. He is also a past Chairman of the Board of Trustees of the PATA Foundation – a non-profit organization with a focus on the protection of the environment, the conservation of culture and heritage, and support for education.

With 30 years of specialist, aviation businesses experience,

focusing on data analytics and technology, he serves on the advisory boards of the Global Tourism Economic Forum, the Global Tourism Resilience Centre, Hong Kong Polytechnic University Hospitality and Tourism School, Guilin Tourism University and the Middle East Travel and Tourism Development Network Centre. He was honored as a "Global Ambassador of Peace Through Tourism" by the International Institute for Peace Through Tourism.

THE NEW ON-TIME PERFORMANCE BOARD



Jeremy Bowen

Chief Executive Officer
Cirium

Jeremy Bowen is the CEO of Cirium, the smart data and advanced analytics company that enables the wider travel industry to keep the world in motion. Cirium is part of global information-based analytics company RELX PLC.

Jeremy joined Cirium in January 2018 as the VP Global Head of Sales, for what was at the time, the data and analytics business within FlightGlobal. In this role Jeremy was responsible for all sales activity and customer engagement.

The company has since been rebranded as Cirium in February this year after significantly growing its portfolio

with the acquisitions of Diio, FlightStats, Ascend and Innovata.

Previous to this role, Jeremy led all sales activity for RELX's businesses Accuity and Fircosoft for eight years within EMEA and APAC. Prior to that spending 15 years with data insights company Dun & Bradstreet in leadership positions in the UK, Australia and New Zealand.

Jeremy is based in the London headquarters.



Mike Malik

Chief Marketing Officer
Cirium

Mike Malik is the Chief Marketing Officer for Cirium and joined the company in 2018. He rebranded the company from FlightGlobal and brought together other brands the company had acquired in the last decade under one umbrella brand.

Mike has been in the airline and aviation industry throughout his career and has held several executive level positions. Mike was Chief Commercial Officer for UBM Aviation, President of Aloha Air Cargo & Aloha Tech Ops, and Chief Information Officer for Aloha Airlines. He was also one of the founding team members of Maxjet Airways, where he was Chief Marketing and Information Officer. Prior to this, he was President and CEO of Shepherd Systems, an airline sales force automation and business intelligence company. He spent 9 years at Sabre and completed

postings in London and then Hong Kong where he was Vice President Asia Pacific. Whilst in Hong Kong, he was a special consultant to the executive management team of Cathay Pacific Airways.

As an executive consultant to several airlines, Mike has assisted them in deploying new software technology into their operations. This included Lufthansa for day-of-operations control, Swissair for pricing, and Cathay Pacific Airways for revenue management, crew management, and maintenance operations.

Mike is currently an advisory board member to Aerobrand, an airline branding and design company that just completed the rebranding of Lufthansa Airlines in 2018.

The industry benchmark for on-time performance (OTP) has arrived!



The industry benchmark for on-time performance (OTP) has arrived! Cirium's On-Time Performance Review 2019 reveals and rewards airlines and airports who have achieved the best and most consistent performance. This report is easy to navigate and provides invaluable and highly accessible data for all stakeholders within the industry.

After 11 years of reporting OTP through the annual awards program, we have enhanced the On-Time Performance Review. We designed it to appeal to a wider audience, from airlines and airports to the traveling public, who experience the best-and worst-aspects of flying every day. We have listened carefully to ensure our data is relevant, quantifiable and can be a genuinely useful tool to enable airlines and airports to raise their game. The 2019 Review is a fresh new approach to presenting the OTP results.

Why OTP Matters

In recent years, it has become clear that achieving world-class customer satisfaction and product differentiation is about more than just airfare discounts and flight availability. When choosing who to fly, savvy travelers also now consider airline OTP and operational reliability. In fact, the American Customer Satisfaction Index (ACSI) has listed on-time arrival as one of the major elements of the customer experience that determines overall satisfaction. Furthermore, airlines have increasingly realized that OTP has a direct impact on improving their bottom line through avoidance and reduction of flight delays and disruptions. Delays are costly for airlines and their passengers. Flight disruption can cost the airlines approximately US\$30 billion and this figure can double when considering travelers, corporations and the wider industry.

Airlines don't always get the credit they deserve for delivering such a complex product. Ensuring a seamless customer experience requires vast effort around the clock by a dedicated 'army' of ground staff, flight crew, cabin crew, engineers, ground service agents and many more companies besides within a vast supply chain. They also have to contend with many factors beyond their control, such as inclement weather and air traffic control issues.

Key issues that will impact OTP

Weather is one of the biggest obstacles to on-time operations. With climate change resulting in more volatile and unpredictable weather, airlines and airports will have to grapple with harsher winters, heavier rains, and stronger winds. However, there are more challenges to consider than weather, such as ground operations issues, boarding, security processing, computer glitches, waiting for connecting passengers and crew operations.

As air travel continues to grow and expand, resulting in more flights in an already congested aviation industry. ACI's (Airport Council International) recent 2019 World Airport Traffic Forecasts show passenger air traffic worldwide is expected to double to more than 17 billion by 2037, from 8.8 billion in 2018. This will result in more strain on the current air travel infrastructure - more planes and more passengers creating more congestion.

To counter this, we have seen a clear trend developing with airlines who have consistently maintained their place at the top of the OTP rankings using technology and analytics to drive up their performance. Those airlines and airports who have been slow to adapt to this new environment, who have not leveraged the latest technology and the insights it can provide, continue to struggle operationally. This also limits their on-time performance improvement and the airlines or airports fail to optimize efficiencies.

Innovations helping airlines and airports

Innovations such as artificial intelligence or biometrics screening come to mind when discussing the ways airlines and airports are trying to improve passenger movement. The overall travel experience through airports and onto aircraft is being enhanced as the boarding process becomes smoother, with fewer bottlenecks, thanks partly to the use of biometric technology.

Opportunities are available for airlines and air traffic control to more efficiently manage aircraft flow into airports - real-time arrival management and advance coordination with ground traffic control is a huge advantage. There is no need for passengers to arrive on time at an airport and then wait for their flight to be allocated to an available gate. We already have all the data available to do a better job. It's just a matter of breaking down information silos and leveraging the power of artificial intelligence and machine learning to improve the traveler experience.

The biggest improvement to OTP and efficiency in the short term would be to use data from all parts of the operation in one presentation layer. This allows airlines to make better decisions even if they're not ready for advanced decision support solutions. Dashboards and cloud-based analytics now provide seamless data sharing.

Aviation must embrace digital transformation.

The future of OTP

We believe Cirium's On-Time Performance Review 2019 will inspire airlines and airports to strive to improve their performance. To thrive in this exceptionally competitive environment, leaders should exhibit resolve and constantly innovate. Aviation must embrace digital transformation.

Data is the new currency, and airlines and airports will harness its power to improve OTP and enhance the passenger experience. The On-Time Performance Review 2019, enables airlines and airports to ensure the passenger is at the heart of everything they do.

In 2020, we believe there will be renewed interest in the way OTP is measured and how airlines and airports are categorized. OTP is one of the major indicators of the efficiency of the business; however, it is clear that airlines and airports do not operate on a level playing field. Apart from having regional and geographical differences, there is a matter of variances, such as in congestion, control over airport terminals and physical traffic volume. We feel it is the right time to have an open debate on how to improve these measures as an industry. If we are able to create an equalized basis of measurement, the results may surprise everyone.



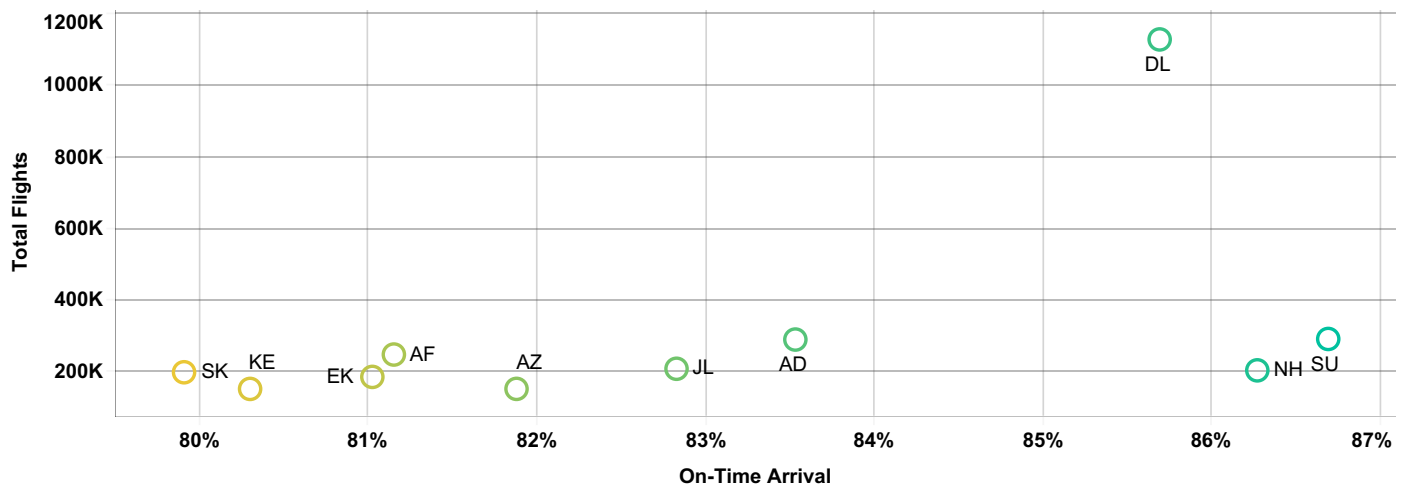
The On-Time Performance Review

Global — Mainline

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(SU) Aeroflot	1	86.68%	290,539	99.18%	98.95%	46	Total Flights 3,048,809
(NH) ANA	2	86.26%	202,476	99.08%	99.92%	32	
(DL) Delta Air Lines	3	85.69%	1,131,142	99.80%	99.78%	58	
(AD) Azul	4	83.53%	288,883	99.26%	98.63%	34	Total Tracked Flights 98.99%
(JL) JAL	5	82.82%	206,904	99.33%	99.75%	34	
(AZ) Alitalia	6	81.87%	150,484	99.08%	96.21%	30	
(AF) Air France	7	81.15%	246,843	99.19%	99.75%	41	Total On-Time Arrivals 82.92%
(EK) Emirates	8	81.02%	184,095	99.86%	98.31%	33	
(KE) Korean Air	9	80.30%	150,369	99.34%	98.80%	30	
(SK) SAS	10	79.90%	197,074	96.65%	99.77%	31	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(SU) Aeroflot	99.18%	44.32%	86.68%	94.19%
(NH) ANA	99.08%	66.20%	86.26%	87.49%
(DL) Delta Air Lines	99.80%	79.00%	85.69%	85.64%
(AD) Azul	99.26%	60.71%	83.53%	84.96%
(JL) JAL	99.33%	62.89%	82.82%	85.75%



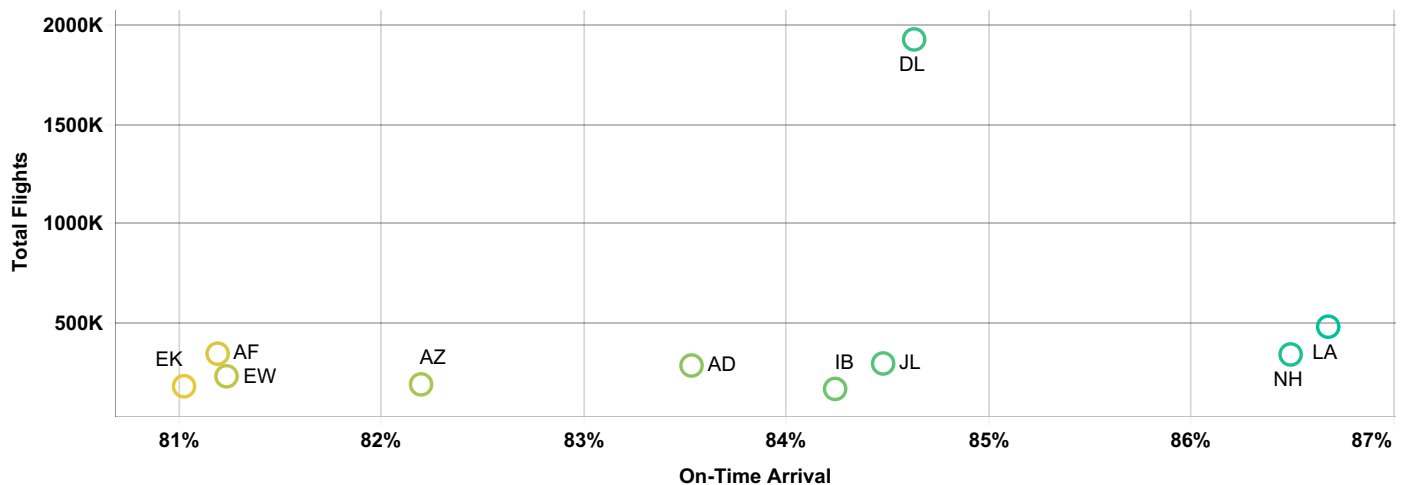
The On-Time Performance Review

Global — Network

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(LA) LATAM Airlines	1	86.67%	484,733	98.95%	98.40%	39	Total Flights 4,483,453
(NH) ANA	2	86.49%	344,625	98.88%	99.94%	31	
(DL) Delta Air Lines	3	84.63%	1,934,328	99.36%	99.77%	62	Total Tracked Flights 98.93%
(JL) JAL	4	84.47%	299,189	99.11%	99.80%	32	
(IB) Iberia	5	84.24%	170,790	99.22%	98.76%	36	Total On-Time Arrivals 83.56%
(AD) Azul	6	83.53%	288,899	99.26%	98.63%	34	
(AZ) Alitalia	7	82.19%	193,687	98.90%	96.57%	30	
(EW) Eurowings	8	81.23%	234,511	98.51%	99.37%	40	
(AF) Air France	9	81.19%	348,596	98.88%	99.71%	40	
(EK) Emirates	10	81.02%	184,095	99.86%	98.31%	33	

Relative Performance



Operational Highlights

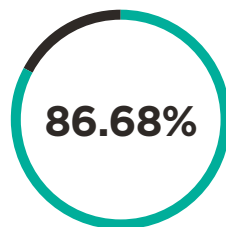
	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(LA) LATAM Airlines	98.95%	74.17%	86.67%	87.00%
(NH) ANA	98.88%	63.82%	86.49%	88.18%
(DL) Delta Air Lines	99.36%	78.87%	84.63%	84.80%
(JL) JAL	99.11%	62.64%	84.47%	87.16%
(IB) Iberia	99.22%	64.95%	84.24%	87.07%

Global Airlines: Mainline

Russian flagship carrier Aeroflot edged out Japan's All Nippon Airways (ANA) to gain the top spot in the Global Mainline category. ANA and Japan Airlines (JAL) were both near the top despite suffering major disruptions from very damaging typhoons in September and October 2019. In fact, ANA's performance increased from 84.20% in 2018 to 86.26% in 2019. Delta Air Lines, the largest network carrier in the group by far, is earning business traveler loyalty with an exceptional completed flight percentage of 99.36% across its network—a result of the success of its program to greatly reduce cancellations. Brazilian carrier, Azul, rounded out the top five with a strong performance while expanding its European services in Porto and Lisbon and U.S. services in Fort Lauderdale and Orlando.

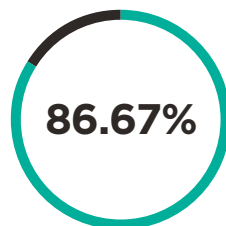
Global Airlines: Network

LATAM Airlines set the standard for most improved global networks in 2019—the result of steady improvement in their mainline performance and very good results from their operations based in Brazil, Ecuador, Peru, and Chile. In 2018, LATAM Airlines ranked in tenth place in the Global Network category with an on-time performance of 79.99% and then climbed to the top of the list in 2019 with an on-time performance of 86.67%. LATAM Airlines' performance is even more impressive considering that the airline is reducing its scheduled block times to get more operating cycles out of its fleet. ANA, Delta Air Lines, JAL, and Iberia, perennial leaders in on-time performance, made the top five, all with greater than 84% on-time arrivals across their networks.



Aeroflot

GLOBAL AIRLINES MAINLINE



LATAM Airlines

GLOBAL AIRLINES NETWORK



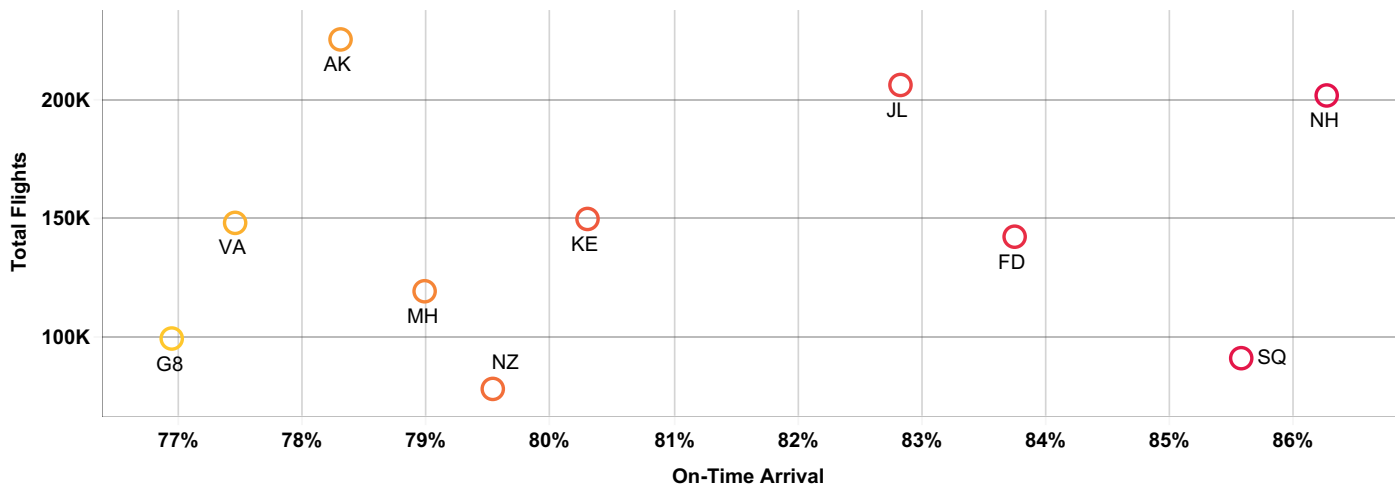
The On-Time Performance Review

Asia Pacific – Mainline

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(NH) ANA	1	86.26%	202,476	99.08%	99.92%	32	Total Flights 1,467,564
(SQ) Singapore Airlines	2	85.57%	91,629	99.99%	96.43%	31	
(FD) Thai AirAsia	3	83.74%	142,885	99.95%	94.41%	24	
(JL) JAL	4	82.82%	206,904	99.33%	99.75%	34	Total Tracked Flights 96.55%
(KE) Korean Air	5	80.30%	150,369	99.34%	98.80%	29	
(NZ) Air New Zealand	6	79.53%	78,666	99.20%	96.41%	31	
(MH) Malaysia Airlines	7	78.98%	119,871	99.11%	96.20%	33	Total On-Time Arrivals 80.99%
(AK) AirAsia	8	78.30%	226,116	99.92%	94.39%	35	
(VA) Virgin Australia	9	77.45%	148,724	98.45%	92.12%	29	
(G8) GoAir	10	76.94%	99,924	99.39%	97.09%	42	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(NH) ANA	99.08%	66.20%	86.26%	87.49%
(SQ) Singapore Airlines	99.99%	72.43%	85.57%	87.49%
(FD) Thai AirAsia	99.95%	66.00%	83.74%	85.20%
(JL) JAL	99.33%	62.89%	82.82%	85.75%
(KE) Korean Air	99.34%	59.65%	80.30%	84.12%



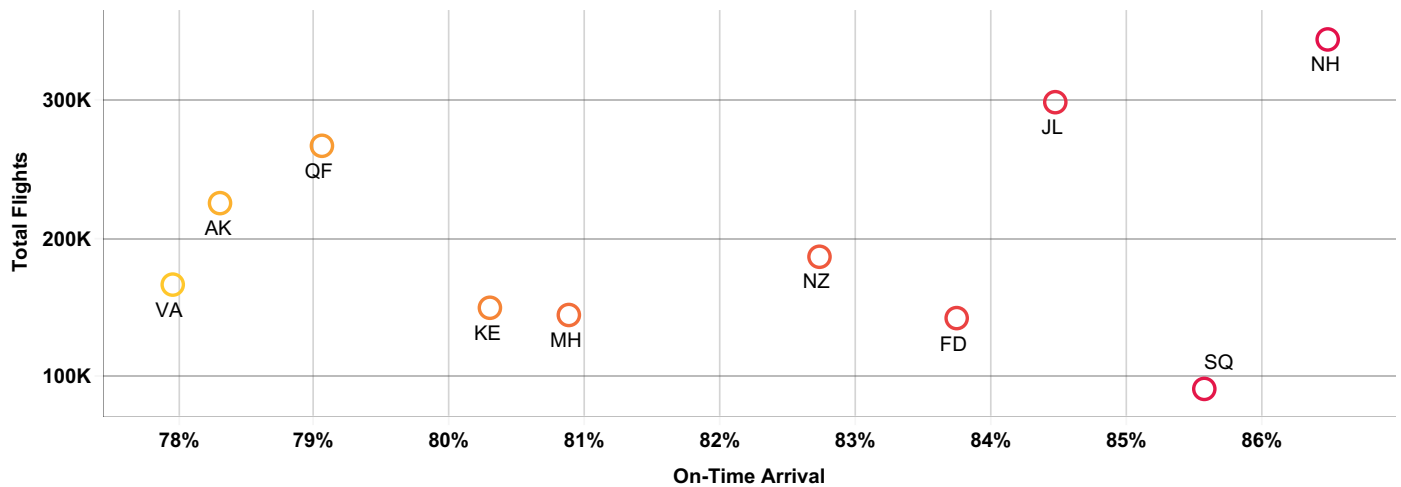
The On-Time Performance Review

Asia Pacific – Network

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(NH) ANA	1	86.49%	344,625	98.88%	99.94%	31	Total Flights 2,021,997
(SQ) Singapore Airlines	2	85.57%	91,629	99.99%	96.43%	31	
(JL) JAL	3	84.47%	299,189	99.11%	99.80%	32	
(FD) Thai AirAsia	4	83.74%	142,885	99.95%	94.41%	24	Total Tracked Flights 96.77%
(NZ) Air New Zealand	5	82.73%	187,288	98.31%	95.57%	26	
(MH) Malaysia Airlines	6	80.88%	145,143	98.97%	96.55%	34	
(KE) Korean Air	7	80.30%	150,369	99.34%	98.80%	29	Total On-Time Arrivals 81.95%
(QF) Qantas	8	79.05%	267,618	98.03%	99.78%	35	
(AK) AirAsia	9	78.30%	226,116	99.92%	94.39%	35	
(VA) Virgin Australia	10	77.95%	167,135	98.56%	92.02%	29	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(NH) ANA	98.88%	63.82%	86.49%	88.18%
(SQ) Singapore Airlines	99.99%	72.43%	85.57%	87.49%
(JL) JAL	99.11%	62.64%	84.47%	87.16%
(FD) Thai AirAsia	99.95%	66.00%	83.74%	85.20%
(NZ) Air New Zealand	98.31%	68.84%	82.73%	82.72%

Asia Pacific: Mainline

ANA continued its streak of industry-leading operational performances by ranking first among Asia Pacific Mainline carriers in 2019. AirAsia placed eighth in the category while its affiliate, Thai AirAsia, had the third best performance in the region relying on a relatively young fleet of A320 aircraft to achieve an on-time performance of 83.74%. Ranking fifth in Asia Pacific this year with an on-time performance of 80.30%, Korean Air improved its on-time performance more than seven percentage points over 2018, when the airline ranked tenth in the Asia Pacific Mainline category with an on-time performance of 73.22%. The airline has credited its improvement to optimized scheduling and a bigger investment in spare aircraft and maintenance operations.

Asia Pacific: Network

The major Japanese airlines have made on-time performance a mission for all employees and ingrained it into their business cultures landing both major Japanese carriers, ANA and JAL, in the top five. ANA had the highest on-time performance numbers across its Asia-Pacific network in 2019 for the second year in a row with an on-time performance of 86.49%, increasing from 85.25% in 2018. The airline has been shifting traffic away from smaller affiliates to its primary partners ANA Wings and Air Japan. Singapore Airlines had a very strong year, placing second with 85.57% on-time arrivals on the heels of major investments in data and technology. JAL, Thai AirAsia, and Air New Zealand were close behind with on-time arrivals of 84.47%, 83.74% and 82.73%, respectively.





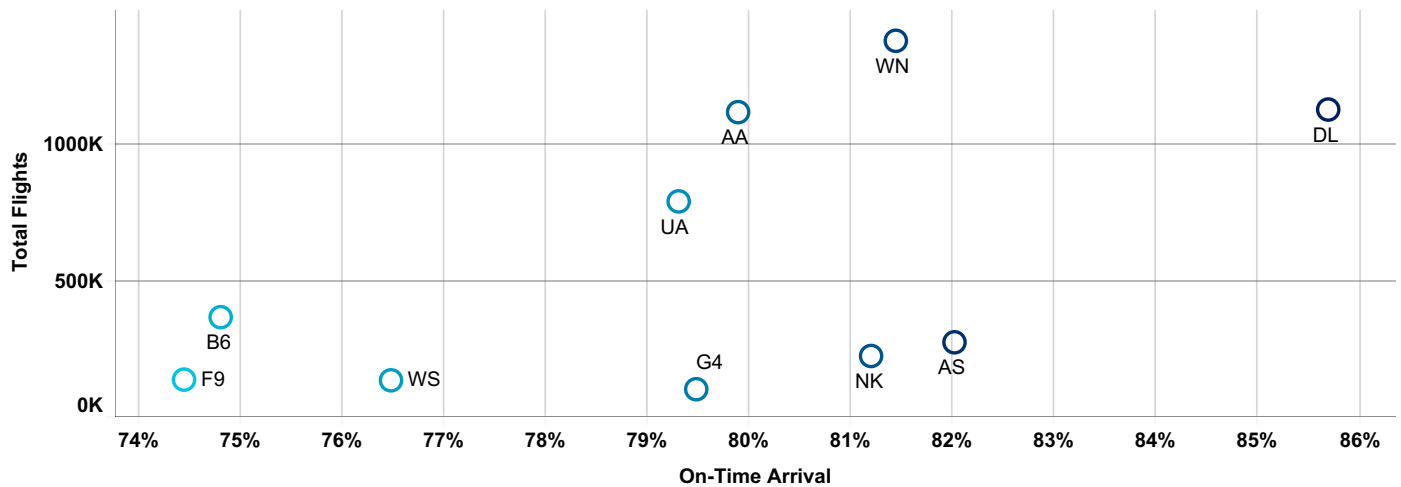
The On-Time Performance Review

North America – Mainline

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(DL) Delta Air Lines	1	85.69%	1,131,142	99.80%	99.78%	58	Total Flights 5,679,611
(AS) Alaska Airlines	2	82.01%	276,129	99.00%	97.81%	30	
(WN) Southwest Airlines	3	81.44%	1,383,700	97.57%	99.52%	44	
(NK) Spirit Airlines	4	81.19%	225,819	98.83%	91.98%	44	Total Tracked Flights 97.56%
(AA) American Airlines	5	79.89%	1,121,569	98.15%	99.76%	50	
(G4) Allegiant Air	6	79.48%	103,714	99.53%	97.74%	62	
(UA) United Airlines	7	79.30%	793,716	99.23%	99.73%	57	Total On-Time Arrivals 79.47%
(WS) WestJet	8	76.48%	136,461	98.85%	96.82%	41	
(B6) JetBlue Airways	9	74.80%	368,388	98.82%	99.65%	75	
(F9) Frontier Airlines	10	74.44%	138,973	98.60%	92.83%	49	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(DL) Delta Air Lines	99.80%	79.00%	85.69%	85.64%
(AS) Alaska Airlines	99.00%	64.71%	82.01%	84.65%
(WN) Southwest Airlines	97.57%	79.45%	81.44%	79.73%
(NK) Spirit Airlines	98.83%	76.51%	81.19%	81.43%
(AA) American Airlines	98.15%	73.82%	79.89%	81.08%



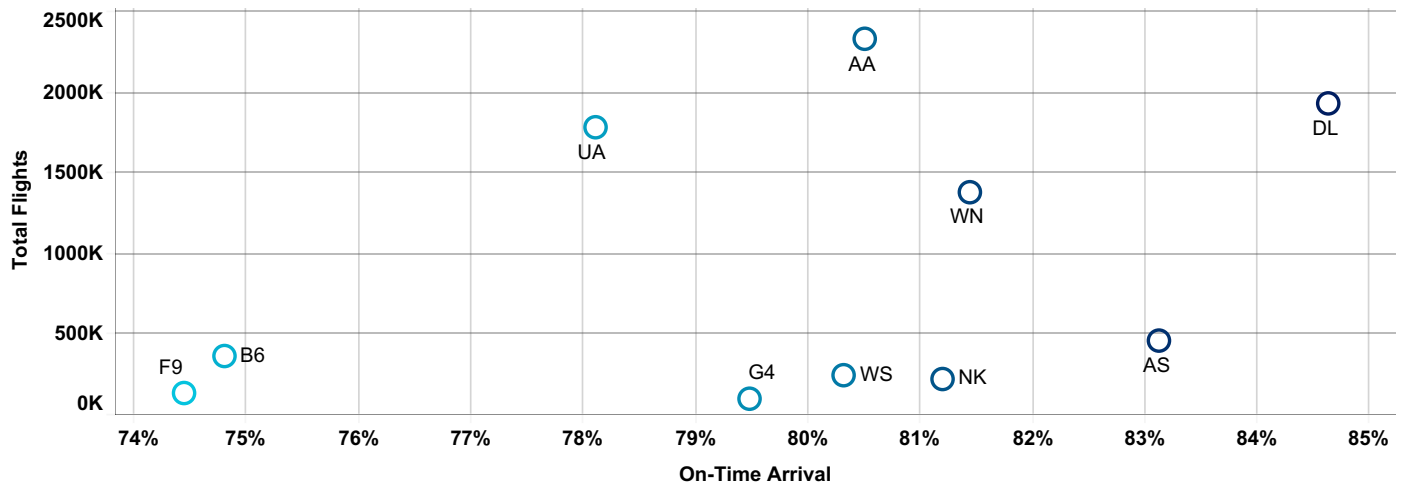
The On-Time Performance Review

North America – Network

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(DL) Delta Air Lines	1	84.63%	1,934,328	99.36%	99.77%	62	Total Flights 8,989,741
(AS) Alaska Airlines	2	83.12%	464,041	98.78%	97.87%	31	
(WN) Southwest Airlines	3	81.44%	1,383,700	97.57%	99.52%	44	
(NK) Spirit Airlines	4	81.19%	225,819	98.83%	91.98%	44	Total Tracked Flights 97.33%
(AA) American Airlines	5	80.50%	2,334,747	97.70%	99.77%	51	
(WS) WestJet	6	80.31%	249,555	98.20%	94.48%	36	
(G4) Allegiant Air	7	79.48%	103,714	99.53%	97.74%	62	Total On-Time Arrivals 79.80%
(UA) United Airlines	8	78.11%	1,786,476	97.88%	99.64%	62	
(B6) JetBlue Airways	9	74.80%	368,388	98.82%	99.65%	75	
(F9) Frontier Airlines	10	74.44%	138,973	98.60%	92.83%	49	

Relative Performance



Operational Highlights

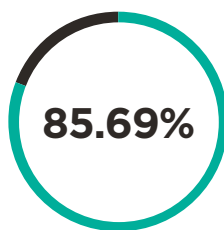
	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(DL) Delta Air Lines	99.36%	78.87%	84.63%	84.80%
(AS) Alaska Airlines	98.78%	65.27%	83.12%	85.62%
(WN) Southwest Airlines	97.57%	79.45%	81.44%	79.73%
(NK) Spirit Airlines	98.83%	76.51%	81.19%	81.43%
(AA) American Airlines	97.70%	71.70%	80.50%	82.10%

North America: Mainline

Mainline performance in North America remained very strong in 2019, with the average on-time performance among the top ten airlines at 79.47%. Delta Air Lines continued to demonstrate industry-leading on-time performance for the third year in a row, based on their focus on operational efficiency. Southwest Airlines is another worthy runner-up, having finished in third place despite overcoming challenges with recent maintenance delays in the first half of the year, as well as the impact of the 737 MAX groundings. Southwest Airlines, Allegiant Air, West Jet, JetBlue Airways and Frontier Airlines all improved on-time performance from 2018. On-time performance for Southwest Airlines improved from 79.35% to 81.44%, Allegiant Air improved from 77.71% to 79.48%. West Jet improved from 75.73% to 76.48%, JetBlue improved from 72.97% to 74.80%, and Frontier improved from 70.93% to 74.44%.

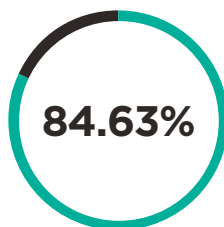
North America: Network

North American Network performance was equally strong last year, with an average on-time performance of 79.93% across the top ten airlines—just over a one-point improvement from 2018's top ten performers who had an average on-time performance of 78.68%. With a consistent network performance, Delta Air Lines remains in the top position for 2019. This is reflective of their focus on not only their own performance but also their network operators. As with mainline performance, we have seen strong performance improvements by many of the finalists over 2018.



Delta Air Lines

NORTH AMERICA MAINLINE



Delta Air Lines

NORTH AMERICA NETWORK



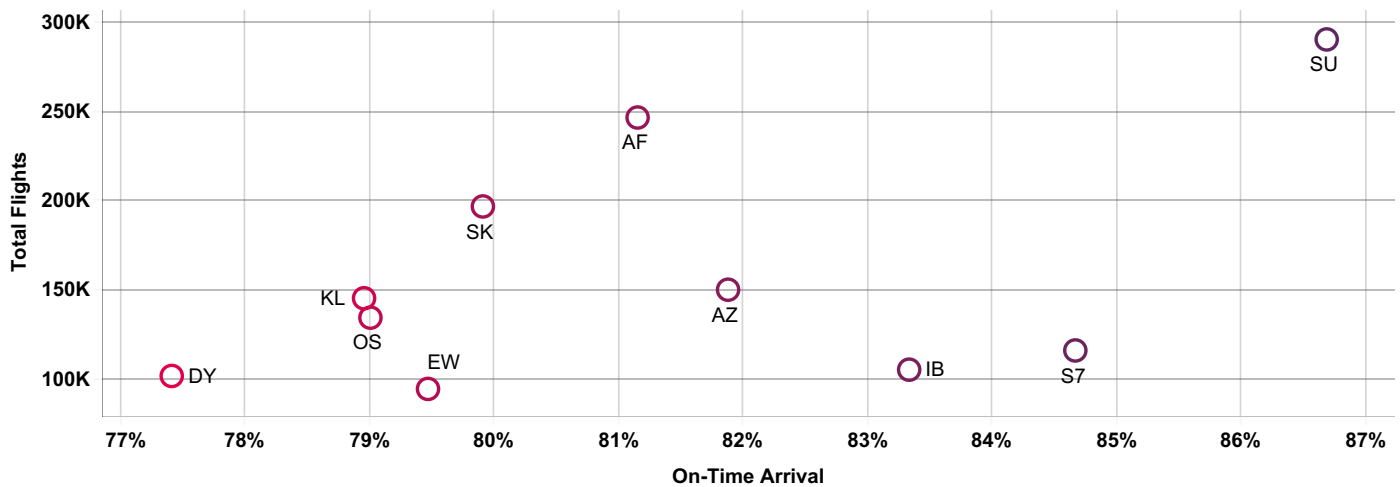
The On-Time Performance Review

Europe – Mainline

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(SU) Aeroflot	1	86.68%	290,539	99.18%	98.95%	46	Total Flights 1,584,924
(S7) S7 Airlines	2	84.66%	116,499	99.85%	98.11%	53	
(IB) Iberia	3	83.33%	105,739	99.34%	99.43%	36	
(AZ) Alitalia	4	81.87%	150,484	99.08%	96.21%	30	Total Tracked Flights 98.67%
(AF) Air France	5	81.15%	246,843	99.19%	99.75%	41	
(SK) SAS	6	79.90%	197,074	96.65%	99.77%	31	
(EW) Eurowings	7	79.46%	94,975	98.89%	99.62%	38	Total On-Time Arrivals 81.24%
(OS) Austrian	8	79.00%	134,850	99.02%	99.90%	33	
(KL) KLM	9	78.95%	145,702	98.86%	99.11%	40	
(DY) Norwegian Air Shuttle	10	77.40%	102,219	99.08%	95.87%	38	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(SU) Aeroflot	99.18%	44.32%	86.68%	94.19%
(S7) S7 Airlines	99.85%	77.49%	84.66%	82.65%
(IB) Iberia	99.34%	67.11%	83.33%	86.88%
(AZ) Alitalia	99.08%	52.41%	81.87%	81.39%
(AF) Air France	99.19%	79.97%	81.15%	75.80%



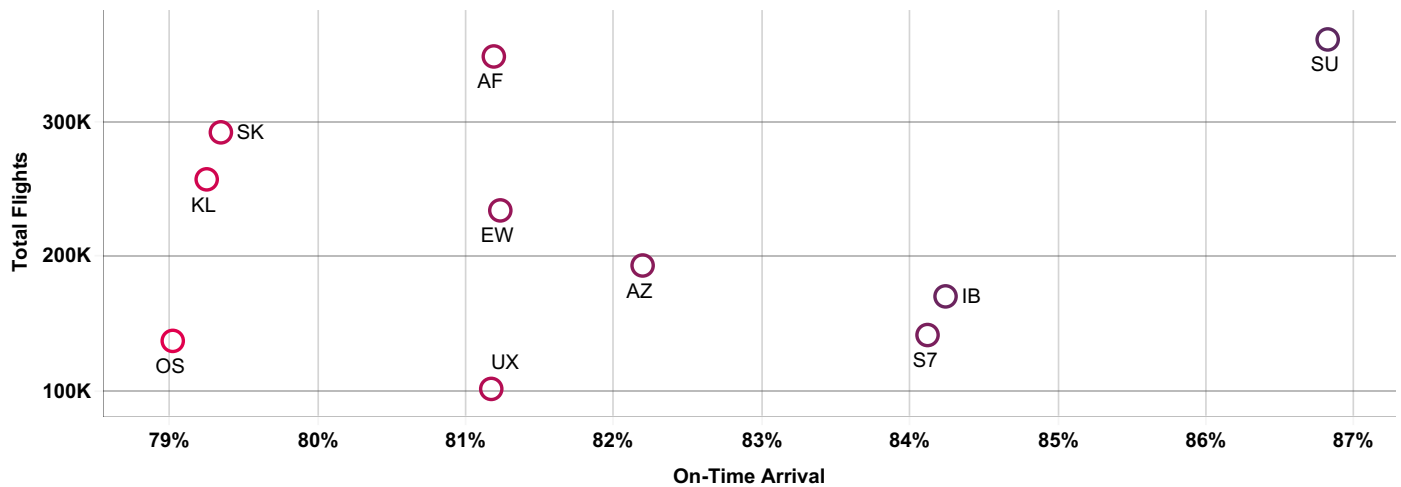
The On-Time Performance Review

Europe – Network

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(SU) Aeroflot	1	86.82%	361,211	99.32%	82.40%	20	Total Flights 2,240,853
(IB) Iberia	2	84.24%	170,790	99.22%	98.76%	36	
(S7) S7 Airlines	3	84.11%	142,147	99.87%	98.10%	53	
(AZ) Alitalia	4	82.19%	193,687	98.90%	96.57%	30	Total Tracked Flights 95.69%
(EW) Eurowings	5	81.23%	234,511	98.51%	99.37%	40	
(AF) Air France	6	81.19%	348,596	98.88%	99.71%	40	
(UX) Air Europa	7	81.17%	102,218	99.84%	82.98%	20	Total On-Time Arrivals 81.85%
(SK) SAS	8	79.34%	292,362	97.40%	99.74%	33	
(KL) KLM	9	79.25%	257,523	98.77%	99.34%	39	
(OS) Austrian	10	79.02%	137,808	99.01%	99.90%	33	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(SU) Aeroflot	99.32%	43.68%	86.82%	94.11%
(IB) Iberia	99.22%	64.95%	84.24%	87.07%
(S7) S7 Airlines	99.87%	77.98%	84.11%	81.63%
(AZ) Alitalia	98.90%	55.33%	82.19%	81.78%
(EW) Eurowings	98.51%	84.78%	81.23%	74.99%

Europe: Mainline

Russian carrier Aeroflot has demonstrated excellent results in the 2019 European Mainline category as it has achieved first place with an on-time performance of 86.68%. Aeroflot's on-time arrival percentage is a 3.7% improvement from 2018 when the airline ranked second in the European Mainline category. The previous year's winner, Alitalia, came fourth on the list in 2019. With an almost 87% on-time performance in both the Europe Mainline and Network categories, Aeroflot has demonstrated significant improvement when compared to its 2018 results.

Europe: Network

Aeroflot has once again demonstrated an impressive on-time performance in the 2019 Europe Network category, with one-time arrivals at 86.82%. Although Iberia spent several years (2015-2017) as Europe's most on-time airline, the airline finished in second place and S7 Airlines—a competitor in Aeroflot's home market – finished in third place. However, both airlines improved their on-time performance from 2018 by more than 2%. KLM Royal Dutch Airlines, the 2018 winner, remained among the finalists by placing in ninth place. Aeroflot's outstanding performance across several categories is particularly impressive considering the large number of flights it operates through the heavily congested and regulated European airspace.





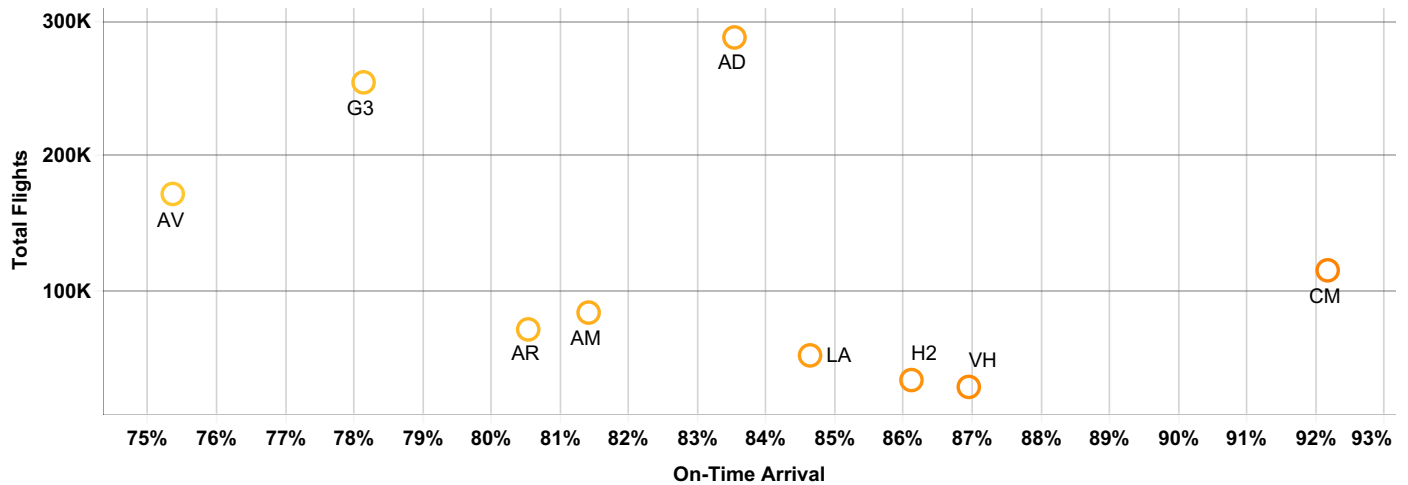
The On-Time Performance Review

Latin America – Mainline

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(CM) Copa Airlines	1	92.16%	115,796	99.81%	98.29%	40	Total Flights 1,104,982
(VH) Viva Air Colombia	2	86.94%	29,147	99.70%	94.49%	34	
(H2) Sky Airline	3	86.10%	34,239	99.75%	99.07%	53	
(LA) LATAM Airlines	4	84.63%	52,586	98.60%	98.52%	38	Total Tracked Flights 98.39%
(AD) Azul	5	83.53%	288,883	99.26%	98.63%	34	
(AM) Aeromexico	6	81.40%	84,389	99.82%	99.66%	50	
(AR) Aerolineas Argentinas	7	80.52%	71,889	97.88%	98.86%	42	Total On-Time Arrivals 83.20%
(G3) Gol	8	78.13%	255,507	99.12%	98.50%	36	
(AV) SA AVIANCA	9	75.35%	172,546	98.27%	99.45%	48	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(CM) Copa Airlines	99.81%	69.18%	92.16%	94.03%
(VH) Viva Air Colombia	99.70%	75.23%	86.94%	87.86%
(H2) Sky Airline	99.75%	61.71%	86.10%	87.66%
(LA) LATAM Airlines	98.60%	68.09%	84.63%	85.29%
(AD) Azul	99.26%	60.71%	83.53%	84.96%



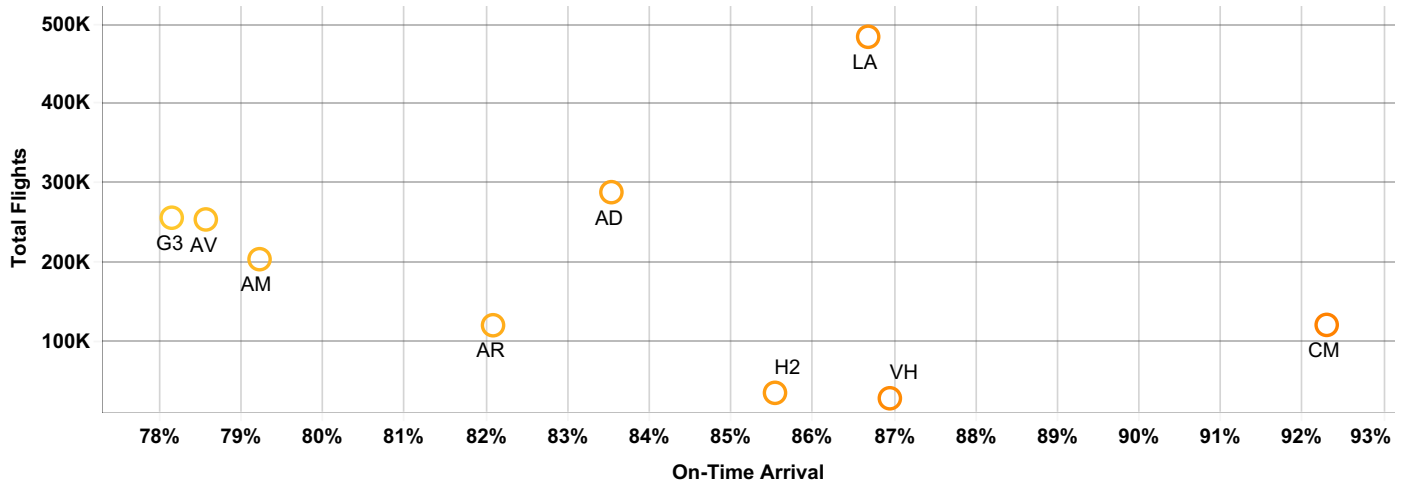
The On-Time Performance Review

Latin America – Network

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(CM) Copa Airlines	1	92.29%	121,622	99.82%	98.29%	40	Total Flights 1,797,241
(VH) Viva Air Colombia	2	86.94%	29,147	99.70%	94.49%	34	
(LA) LATAM Airlines	3	86.67%	484,733	98.95%	98.40%	39	
(H2) Sky Airline	4	85.53%	36,003	99.76%	98.98%	52	Total Tracked Flights 98.20%
(AD) Azul	5	83.53%	288,899	99.26%	98.63%	34	
(AR) Aerolineas Argentinas	6	82.08%	121,188	97.67%	98.50%	41	
(AM) Aeromexico	7	79.22%	204,423	99.82%	99.68%	51	Total On-Time Arrivals 83.66%
(AV) SA AVIANCA	8	78.56%	254,537	98.38%	98.70%	48	
(G3) Gol	9	78.14%	256,689	99.11%	98.14%	36	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(CM) Copa Airlines	99.82%	69.06%	92.29%	94.15%
(VH) Viva Air Colombia	99.70%	75.23%	86.94%	87.86%
(LA) LATAM Airlines	98.95%	74.17%	86.67%	87.00%
(H2) Sky Airline	99.76%	60.97%	85.53%	87.42%
(AD) Azul	99.26%	60.71%	83.53%	84.96%

LATIN AMERICA: Mainline

Latin America's Mainline airline category was extremely competitive in 2019, with only nine airlines qualifying for the category based on their number of flights, seats and available seat kilometers (ASKs). This is compared to only six qualifiers in the previous year. Copa Airlines has again taken the premier place for the sixth year in a row with an on-time performance of 92.16%, an increase from 89.68% in 2018, demonstrating sound operational performance with its primary hub in Panama. Average on-time performance among the nine finalists in the region was 83.20%. Increased competition should prove beneficial to travelers as airlines realize that good on-time performance may lead to improved customer satisfaction and reduced operational costs.

LATIN AMERICA: Network

The Latin America Network category in Latin America was just as competitive over the year, yet Copa Airlines has made it to the top of the list once again with an on-time performance of 92.27%, demonstrating top operational performance across its network. The region's ten finalists had an average on-time performance of 84.01%, suggesting on-time performance is increasingly recognized by airlines as a means to reduce operational costs and improve customer satisfaction.





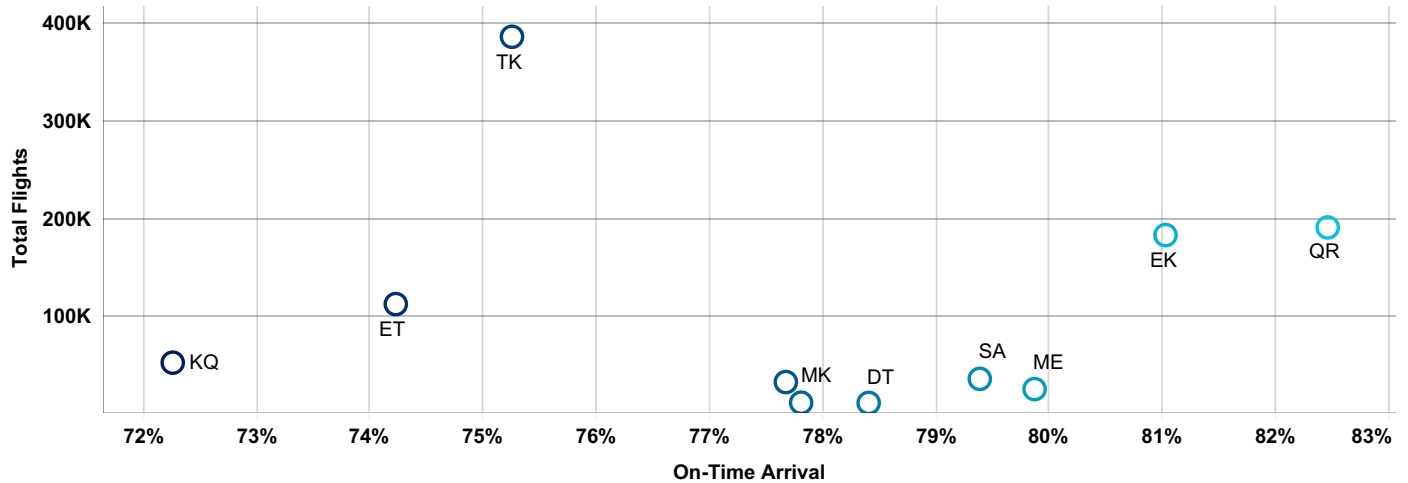
The On-Time Performance Review

Middle East and Africa – Mainline

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(QR) Qatar Airways	1	82.45%	191,928	99.54%	82.74%	20	Total Flights 1,055,350
(EK) Emirates	2	81.02%	184,095	99.86%	98.31%	33	
(ME) Middle East Airlines	3	79.86%	27,102	99.96%	85.96%	19	
(SA) South African Airways	4	79.38%	37,557	98.03%	97.61%	32	Total Tracked Flights 91.07%
(DT) TAAG	5	78.40%	13,044	100.00%	96.11%	68	
(MK) Air Mauritius	6	77.80%	13,258	99.88%	93.60%	37	
(RJ) Royal Jordanian	7	77.67%	34,291	99.97%	93.73%	39	Total On-Time Arrivals 77.83%
(TK) Turkish Airlines	8	75.25%	386,253	99.10%	82.88%	23	
(ET) Ethiopian Airlines	9	74.22%	113,761	99.90%	85.58%	26	
(KQ) Kenya Airways	10	72.25%	54,061	96.95%	94.20%	47	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(QR) Qatar Airways	99.54%	64.70%	82.45%	83.76%
(EK) Emirates	99.86%	73.44%	81.02%	78.13%
(ME) Middle East Airlines	99.96%	58.61%	79.86%	83.69%
(SA) South African Airwa..	98.03%	53.38%	79.38%	84.89%
(DT) TAAG	100.00%	35.07%	78.40%	83.66%



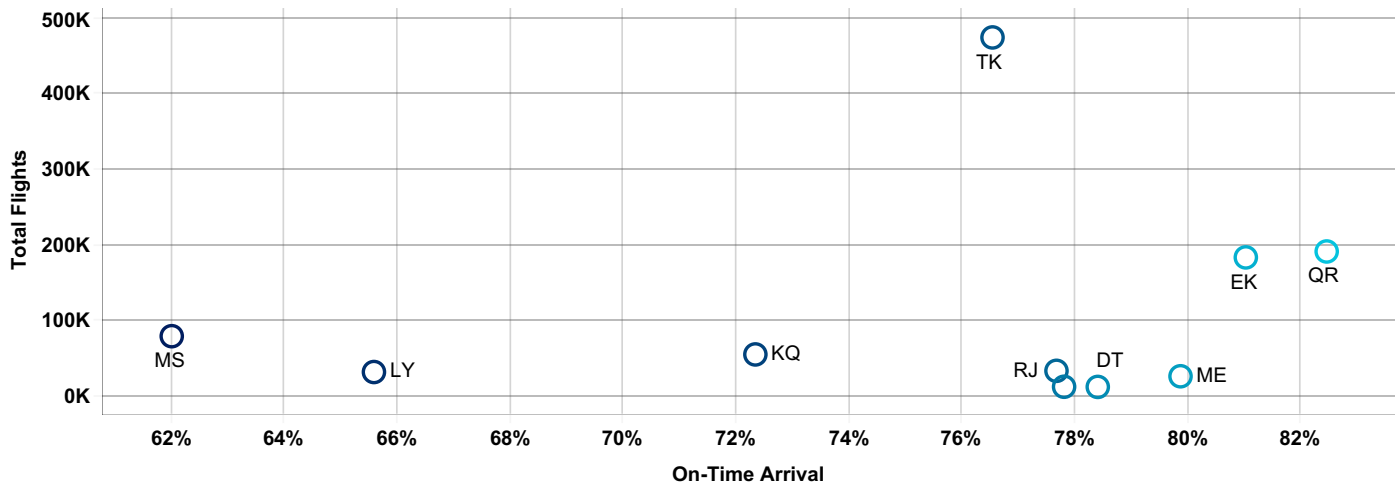
The On-Time Performance Review

Middle East and Africa – Network

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(QR) Qatar Airways	1	82.45%	191,928	99.54%	82.74%	20	Total Flights 1,107,027
(EK) Emirates	2	81.02%	184,095	99.86%	98.31%	33	
(ME) Middle East Airlines	3	79.86%	27,102	99.96%	85.96%	19	Total Tracked Flights 92.10%
(DT) TAAG	4	78.40%	13,044	100.00%	96.11%	68	
(MK) Air Mauritius	5	77.80%	13,258	99.88%	93.60%	37	Total On-Time Arrivals 75.37%
(RJ) Royal Jordanian	6	77.67%	34,291	99.97%	93.73%	39	
(TK) Turkish Airlines	7	76.53%	474,634	98.95%	81.58%	21	
(KQ) Kenya Airways	8	72.34%	55,944	96.96%	93.40%	45	
(LY) El Al	9	65.58%	32,700	99.88%	98.65%	43	
(MS) EgyptAir	10	62.00%	80,031	99.21%	96.91%	35	

Relative Performance



Operational Highlights

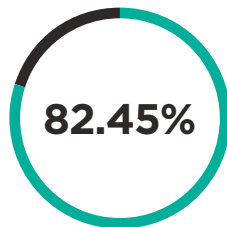
	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(QR) Qatar Airways	99.54%	64.70%	82.45%	83.76%
(EK) Emirates	99.86%	73.44%	81.02%	78.13%
(ME) Middle East Airlines	99.96%	58.61%	79.86%	83.69%
(DT) TAAG	100.00%	35.07%	78.40%	83.66%
(MK) Air Mauritius	99.88%	50.27%	77.80%	81.91%

MIDDLE EAST & AFRICA: Mainline

With an on-time performance of 82.45%, Qatar Airways has maintained its position at the top of the group for the Middle East & Africa Mainline category. Increased efficiencies at Doha Hamad International Airport have undoubtedly benefited the Qatari carrier, which is now the overall category winner for the fifth consecutive year. Dubai-based rival Emirates did exceptionally well to achieve second place with an on-time performance of 81.02%, despite the main runway closure in May 2019 which would have seriously affected its operations.

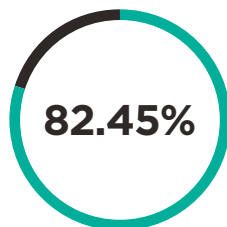
MIDDLE EAST & AFRICA: Network

Qatar Airways maintained its third year as the most on-time airline network in the Middle East & Africa with an on-time performance of 82.45%, the same as its mainline performance. Normally a category with only five or six qualifying airlines, this year marks the first time that ten airlines have qualified as finalists for the Middle East & Africa category.



Qatar Airways

MIDDLE EAST & AFRICA MAINLINE



Qatar Airways

MIDDLE EAST & AFRICA NETWORK



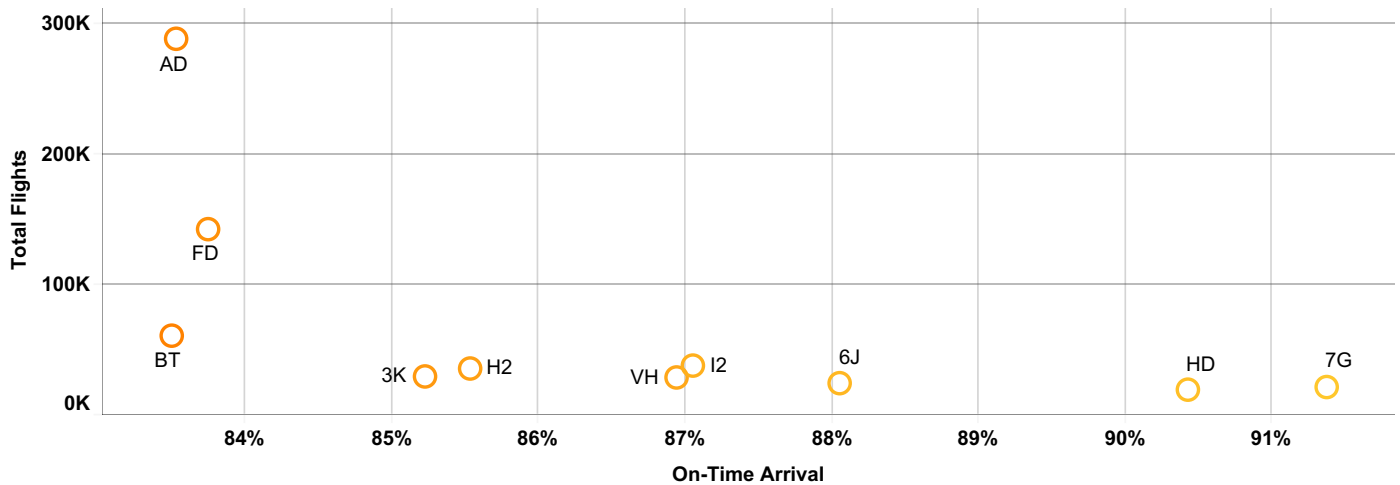
The On-Time Performance Review

Low Cost Carriers

2019

	On Time Ranking	On-Time Arrival	Total Flights	Comp Factor	Tracked Flights	Avg Delay Mins	Summary of Top Performers
(7G) StarFlyer	1	91.37%	21,796	98.85%	93.29%	16	Total Flights 692,645
(HD) Air Do	2	90.42%	19,782	99.02%	99.96%	32	
(6J) Solaseed Air	3	88.05%	24,764	98.93%	99.76%	26	
(I2) Iberia Express	4	87.05%	38,249	99.87%	99.48%	36	Total Tracked Flights 97.19%
(VH) Viva Air Colombia	5	86.94%	29,147	99.70%	94.49%	34	
(H2) Sky Airline	6	85.53%	36,003	99.76%	98.98%	52	
(3K) Jetstar Asia	7	85.22%	29,924	99.90%	94.87%	33	Total On-Time Arrivals 86.54%
(FD) Thai AirAsia	8	83.74%	142,885	99.95%	94.41%	25	
(AD) Azul	9	83.53%	288,899	99.26%	98.63%	34	
(BT) Air Baltic	10	83.50%	61,196	99.65%	97.99%	32	

Relative Performance



Operational Highlights

	Comp Factor	Within Block Time	On-Time Arrivals	On-Time Departures
(7G) StarFlyer	98.85%	66.45%	91.37%	93.65%
(HD) Air Do	99.02%	68.05%	90.42%	91.50%
(6J) Solaseed Air	98.93%	65.36%	88.05%	88.81%
(I2) Iberia Express	99.87%	66.71%	87.05%	91.16%
(VH) Viva Air Colombia	99.70%	75.23%	86.94%	87.86%

LOW COST CARRIERS

The Low Cost Carrier (LCC) category represents a unique set of airlines that traditionally compete on low fares. As the 2019 results show, these airlines now also compete in the area of on-time performance. Japan's StarFlyer takes the top spot with an impressive on-time performance of 91.37% – a result that is exceptional for any airline. Meanwhile, the average on-time performance in the LCC category for the ten finalists was 87.38%, the highest average for any category in 2019. As these finalists reflect, low cost does not equate to low on-time performance.





The 2019 On-Time Performance Award Winner Profile

Aeroflot Russian Airlines -- Europe Mainline and Network, Global Mainline

On Time Arrival
Rate
87.06%

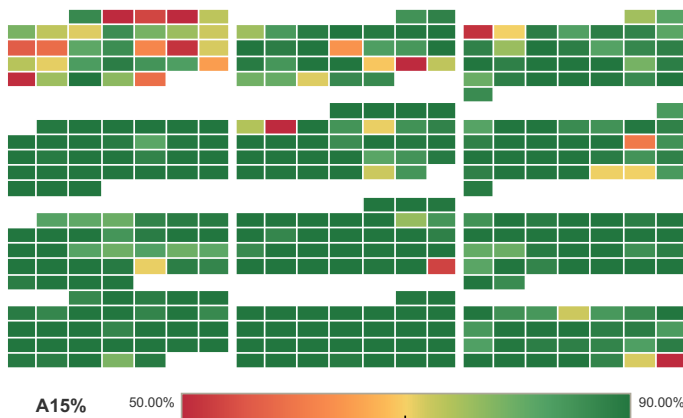
Active
Tails
243

Total Flights
Scheduled
272,529

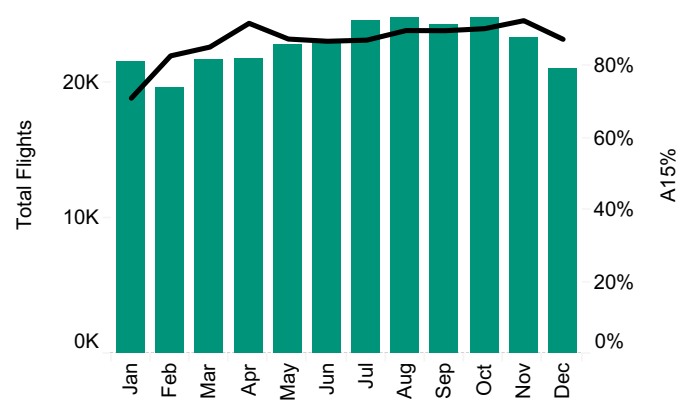
Avg Daily Utilization
(per Tail)
10.06 hr

Total Distance
Flown
532.90M km

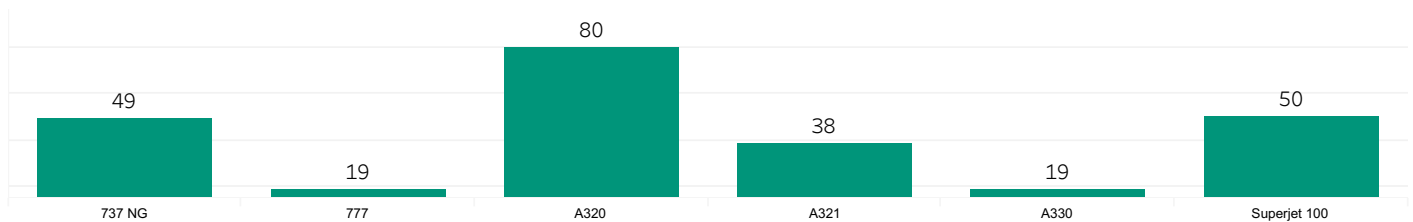
Daily On-Time Performance Calendar



Monthly On-Time Performance



Fleet Composition



Airport Hub Grouping



Most Flown Routes

	Flights	Seats	A15%
SVO - LED	7,361	1,130K	93.24%
LED - SVO	7,353	1,129K	88.33%
SVO - AER	3,779	569K	91.01%
AER - SVO	3,760	567K	84.95%
SVO - SVX	3,313	515K	94.54%

Operator
Country:
**Russian
Federation**

204,548
Arriving Flights

204,672
Departing Flights



The 2019 On-Time Performance Award Winner Profile

LATAM Airlines -- Global Network

On Time Arrival
Rate
84.95%

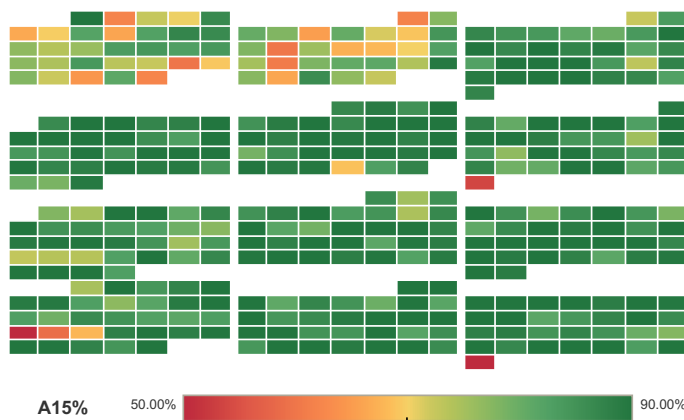
Active
Tails
275

Total Flights
Scheduled
77,235

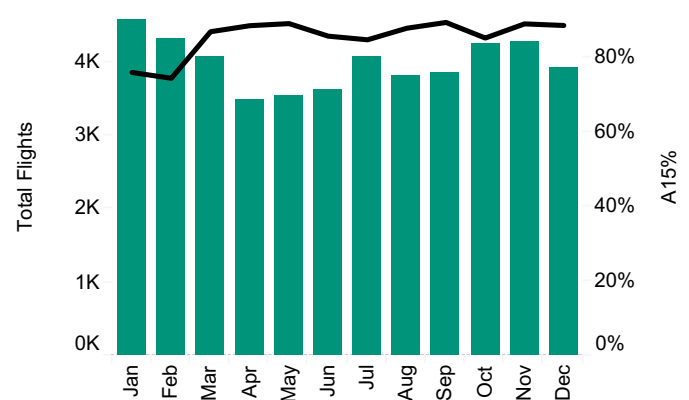
Avg Daily Utilization
(per Tail)
2.78 hr

Total Distance
Flown
134.76M km

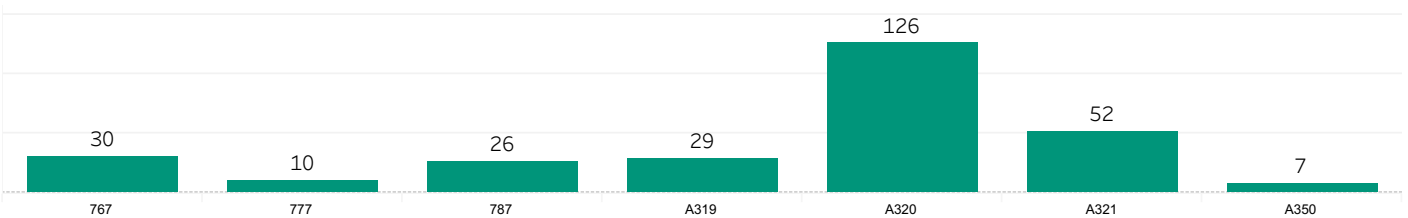
Daily On-Time Performance Calendar



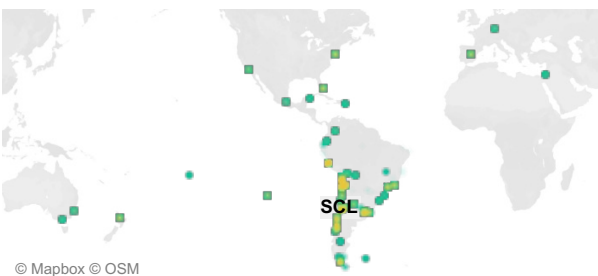
Monthly On-Time Performance



Fleet Composition



Airport Hub Grouping



Most Flown Routes

	Flights	Seats	A15%
ANF - SCL	2,636	490K	86.62%
SCL - ANF	2,620	487K	89.07%
LIM - SCL	2,148	435K	85.63%
SCL - LIM	2,138	432K	84.90%
SCL - CJC	2,038	390K	92.95%

Operator
Country: **Chile**

35,002
Arriving Flights

34,999
Departing Flights



The 2019 On-Time Performance Award Winner Profile

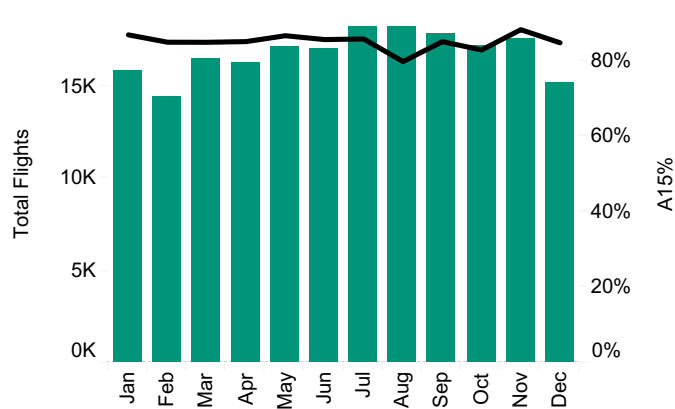
All Nippon Airways -- Asia Pacific Mainline and Network

On Time Arrival Rate 85.13%	Active Tails 230	Total Flights Scheduled 193,318	Avg Daily Utilization (per Tail) 7.02 hr	Total Distance Flown 373.68M km
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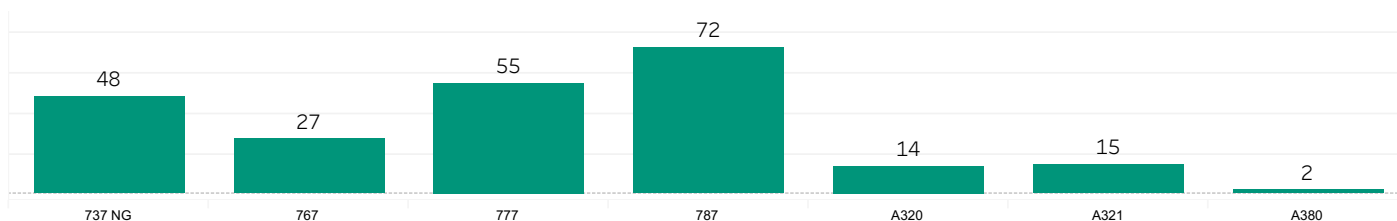
Daily On-Time Performance Calendar



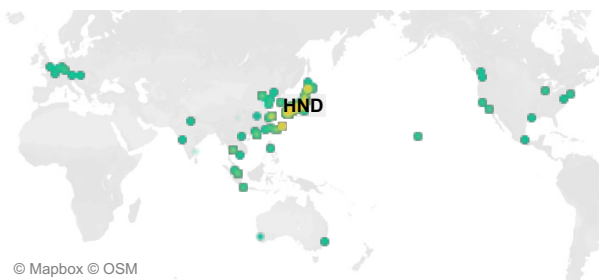
Monthly On-Time Performance



Fleet Composition



Airport Hub Grouping



Most Flown Routes

	Flights	Seats	A15%
HND - FUK	6,199	2,059K	88.40%
FUK - HND	6,126	2,019K	80.82%
CTS - HND	5,874	2,251K	84.52%
HND - CTS	5,618	2,197K	83.47%
HND - ITM	5,224	1,649K	89.26%

Operator Country:
Japan

173,245
Arriving Flights

173,268
Departing Flights



The 2019 On-Time Performance Award Winner Profile

Delta Air Lines -- North America Mainline and Network

On Time Arrival
Rate
84.84%

Active
Tails
932

Total Flights
Scheduled
1,011,488

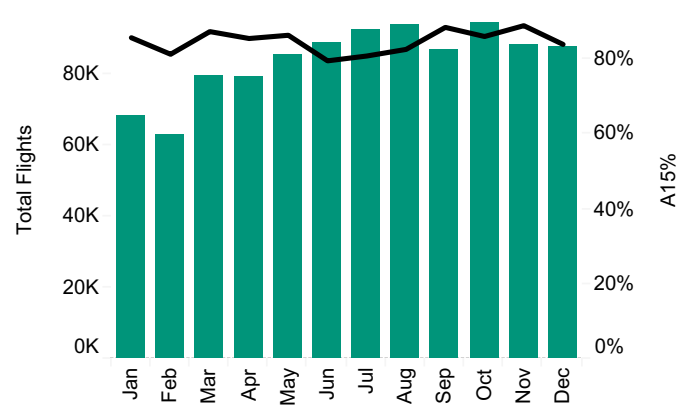
Avg Daily Utilization
(per Tail)
9.31 hr

Total Distance
Flown
1,869.24M km

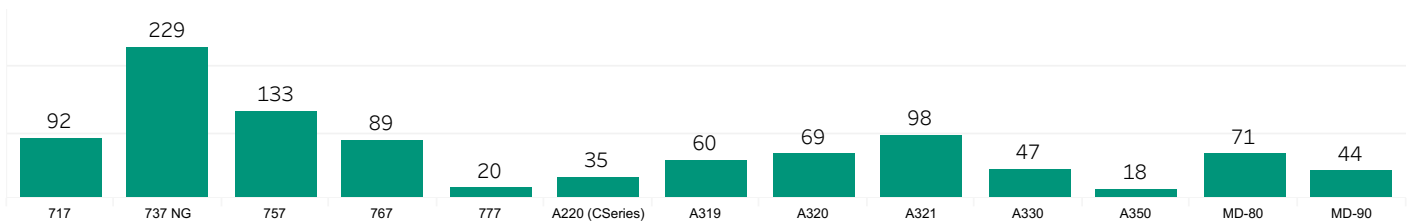
Daily On-Time Performance Calendar



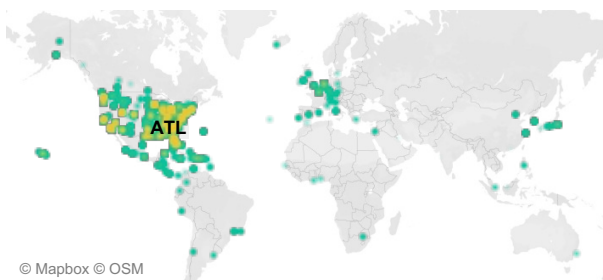
Monthly On-Time Performance



Fleet Composition



Airport Hub Grouping



Most Flown Routes

	Flights	Seats	A15%
ATL - LGA	5,166	897K	76.22%
LGA - ATL	5,166	898K	79.46%
MCO - ATL	5,038	971K	85.55%
ATL - MCO	5,027	969K	83.14%
ATL - TPA	4,119	747K	85.31%
TPA - ATL	4,119	746K	89.03%

Operator
Country:
United States

943,590
Arriving Flights

943,736
Departing Flights



The 2019 On-Time Performance Award Winner Profile

Copa Airlines -- Latin America Mainline and Network

On Time Arrival
Rate
91.86%

Active
Tails
176

Total Flights
Scheduled
88,638

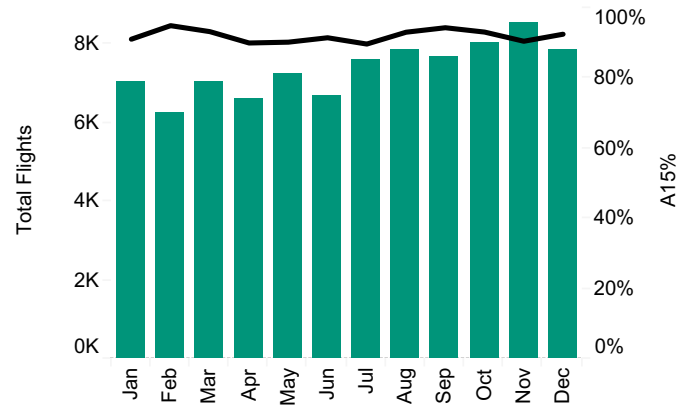
Avg Daily Utilization
(per Tail)
10.14 hr

Total Distance
Flown
212.82M km

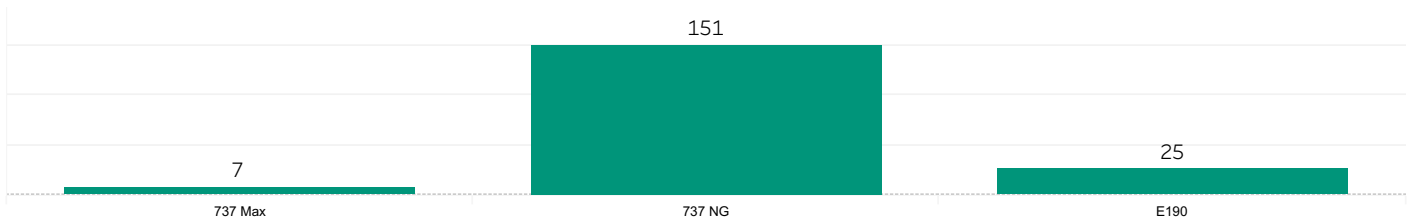
Daily On-Time Performance Calendar



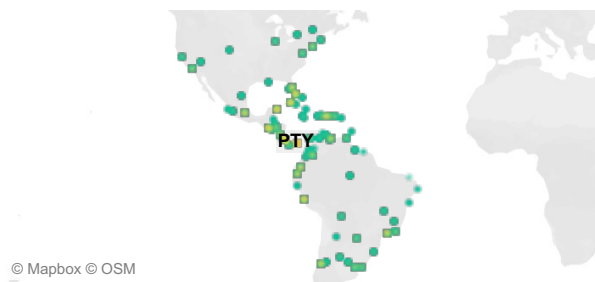
Monthly On-Time Performance



Fleet Composition



Airport Hub Grouping



Most Flown Routes

	Flights	Seats	A15%
PTY - SJO	2,481	350K	93.23%
SJO - PTY	2,445	344K	92.86%
PTY - CUN	2,145	343K	95.50%
CUN - PTY	2,128	341K	96.02%
HAV - PTY	2,084	321K	95.80%

Operator
Country:
Panama

43,614
Arriving Flights

42,632
Departing Flights

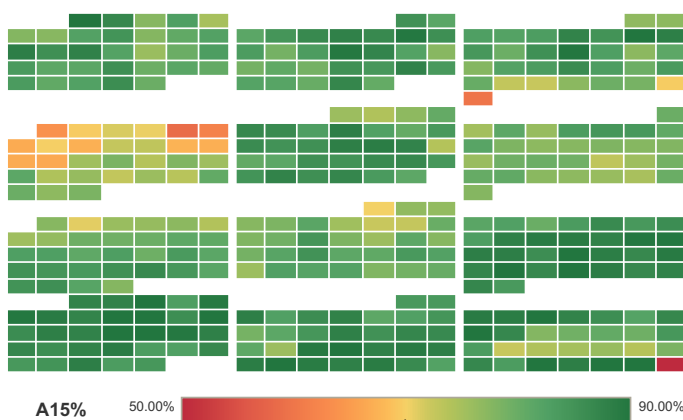


The 2019 On-Time Performance Award Winner Profile

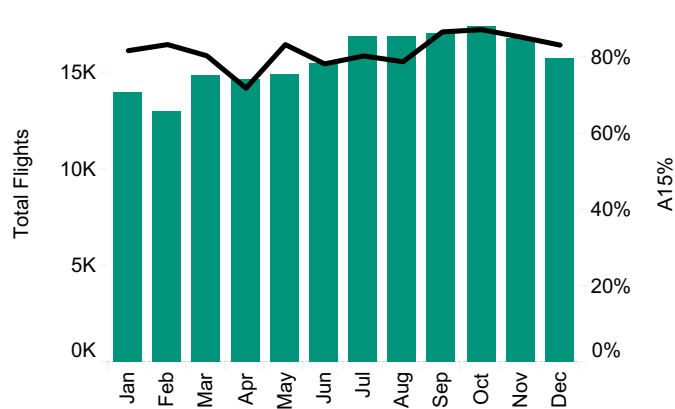
Qatar Airways -- Middle East & Africa Mainline and Network

On Time Arrival Rate 82.29%	Active Tails 235	Total Flights Scheduled 187,185	Avg Daily Utilization (per Tail) 13.37 hr	Total Distance Flown 819.93M km
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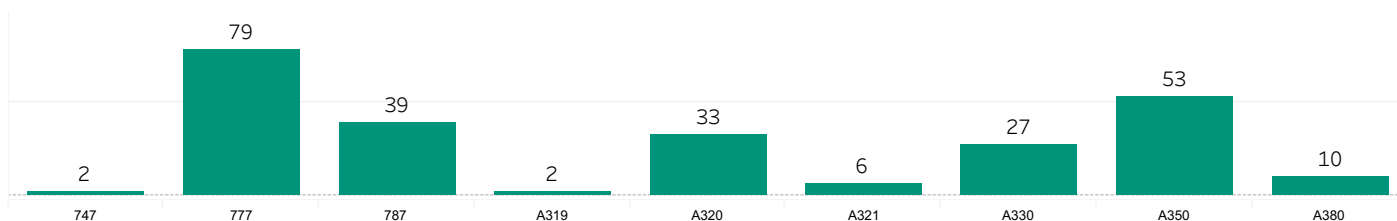
Daily On-Time Performance Calendar



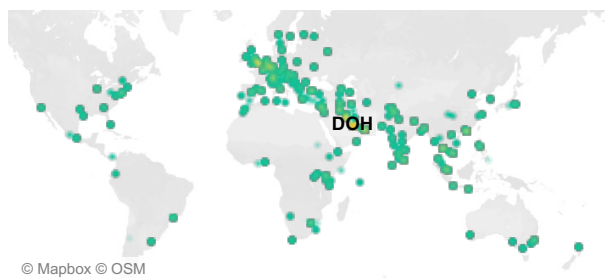
Monthly On-Time Performance



Fleet Composition



Airport Hub Grouping



Most Flown Routes

	Flights	Seats	A15%
DOH - KWI	3,480	752K	93.19%
KWI - DOH	3,477	752K	85.43%
MCT - DOH	2,353	451K	90.88%
DOH - MCT	2,347	450K	95.25%
DOH - LHR	2,240	752K	84.64%

Operator Country:
Qatar

88,792
Arriving Flights

88,668
Departing Flights



The 2019 On-Time Performance Award Winner Profile

StarFlyer -- Low Cost Carrier

On Time Arrival
Rate
87.42%

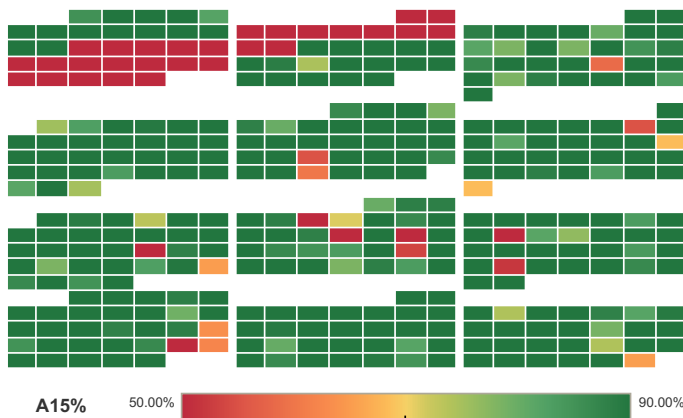
Active
Tails
20

Total Flights
Scheduled
23,196

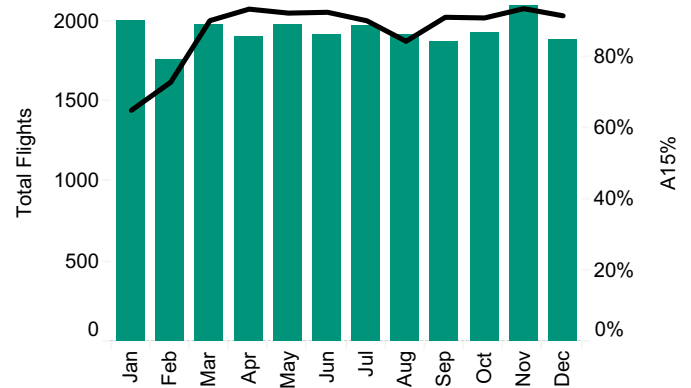
Avg Daily Utilization
(per Tail)
7.68 hr

Total Distance
Flown
18.59M km

Daily On-Time Performance Calendar



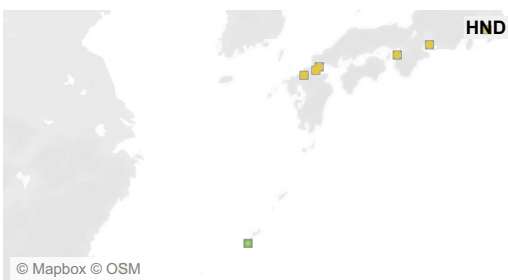
Monthly On-Time Performance



Fleet Composition



Airport Hub Grouping



Most Flown Routes

	Flights	Seats	A15%
HND - KKJ	3,569	495K	88.33%
KKJ - HND	3,566	495K	93.97%
FUK - HND	2,857	396K	87.64%
HND - FUK	2,854	396K	87.87%
KIX - HND	1,785	248K	93.05%

Operator
Country:
Japan

22,481
Arriving Flights

22,486
Departing Flights

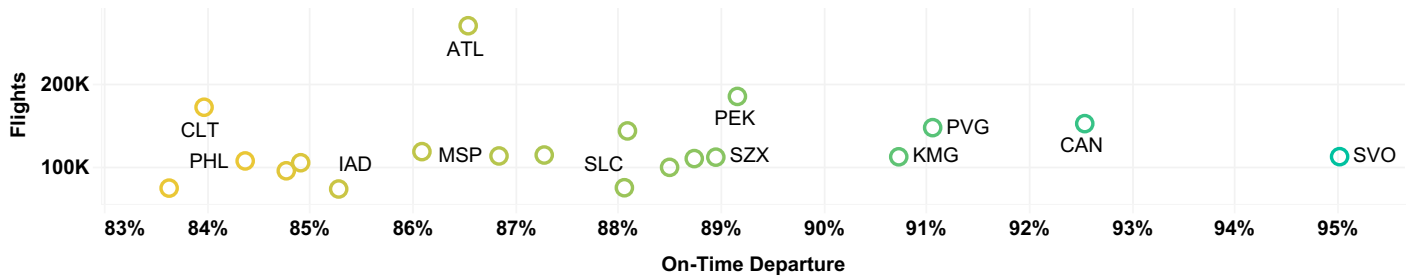
The On-Time Performance Review

Global Airports

2019

	On-Time Ranking	On-Time Departure	Total Flights	Tracked Flights	Avg Dep Delay	Routes Served	Summary of Global Airports
(SVO) Sheremetyevo International Airport	1	95.01%	115,090	86.18%	15	219	Total Flights 2,545,525
(CAN) Guangzhou Baiyun International Airp..	2	92.52%	154,773	98.59%	58	191	
(PVG) Shanghai Pudong International Airport	3	91.04%	149,965	98.35%	55	226	
(KMG) Kunming Changshui International Air..	4	90.72%	114,923	97.99%	59	165	
(PEK) Beijing Capital International Airport	5	89.15%	187,488	98.21%	51	249	Total Seats 420.38M
(SZX) Shenzhen Bao'an International Airport	6	88.94%	114,474	98.54%	53	175	
(XIY) Xianyang International Airport	7	88.73%	112,756	97.99%	64	195	
(CKG) Chongqing Jiangbei International Air..	8	88.49%	102,244	97.52%	56	174	
(HND) Haneda Airport	9	88.08%	146,008	97.99%	32	86	Total Routes 3,475
(SLC) Salt Lake City International Airport	10	88.05%	77,744	99.40%	62	103	
(CTU) Chengdu Shuangliu International Airp..	11	87.27%	117,069	98.45%	69	200	
(MSP) Minneapolis-St. Paul International Air..	12	86.84%	115,945	93.00%	39	172	
(ATL) Hartsfield-Jackson Atlanta Internation..	13	86.52%	272,483	98.78%	44	244	On-Time Departures 85.70%
(DTW) Detroit Metropolitan Wayne County A..	14	86.08%	121,144	99.19%	61	141	
(IAD) Washington Dulles International Airport	15	85.27%	76,214	97.71%	67	144	
(HKG) Hong Kong International Airport	16	84.90%	107,789	98.34%	43	167	
(MIA) Miami International Airport	17	84.76%	98,115	98.97%	51	171	Tracked Flights 97.44%
(PHL) Philadelphia International Airport	18	84.36%	109,955	97.38%	51	142	
(CLT) Charlotte Douglas International Airport	19	83.96%	174,480	98.55%	50	173	
(OSL) Oslo Airport Gardermoen	20	83.62%	77,268	97.60%	34	138	

Relative Performance



Operational Highlights

	On-Time Departure	On-Time Arrival	Total Routes Served	Total Airlines Served
(SVO) Sheremetyevo International Airport	95.01%	85.69%	219	37
(CAN) Guangzhou Baiyun International Airp..	92.52%	82.23%	191	74
(PVG) Shanghai Pudong International Airport	91.04%	83.97%	226	88
(KMG) Kunming Changshui International Air..	90.72%	80.14%	165	48
(PEK) Beijing Capital International Airport	89.15%	75.67%	249	78

GLOBAL AIRPORTS

Sheremetyevo International Airport (SVO) had over 315 flights per day in 2019. SVO's new third runway, clearly offers relief—and some much-needed new capacity at Russia's busiest airport. Aeroflot, the largest carrier at the airport maintains nearly 84% of the total operations at SVO. With a carrier owning such a lion's share of operations at one airport, it stands to reason that as Aeroflot goes, so does SVO. Well done to SVO's Management for keeping all three runways operational year-round and Aeroflot's network planning and operations teams who have worked hard to fine-tune their schedules and operations in order to keep the aircraft flying in and out of Sheremetyevo as scheduled.



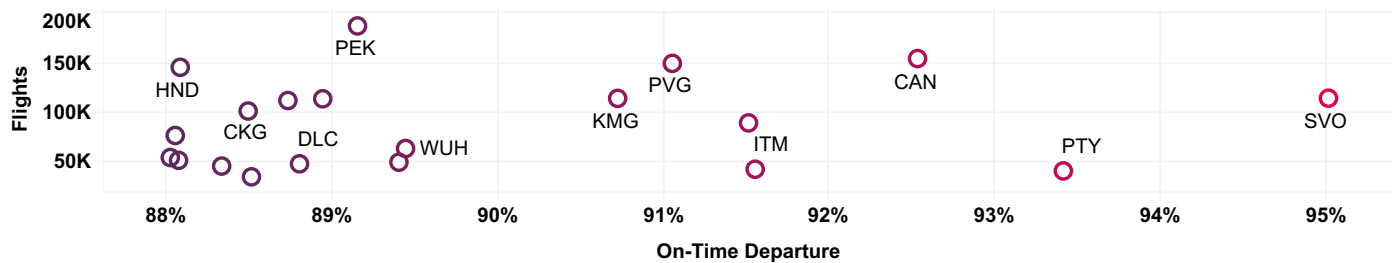
The On-Time Performance Review

Large Airports

2019

	On-Time Ranking	On-Time Departure	Total Flights	Tracked Flights	Avg Dep Delay	Routes Served	Summary of Large Airports
(SVO) Sheremetyevo International Airport	1	95.01%	115,090	86.18%	15	219	Total Flights 1,808,851
(PTY) Tocumen International Airport	2	93.41%	42,270	96.97%	43	87	
(CAN) Guangzhou Baiyun International Airp..	3	92.52%	154,773	98.59%	58	191	
(ITM) Itami Airport	4	91.55%	43,946	97.50%	24	26	Total Seats 322.80M
(SHA) Shanghai Hongqiao International Airp..	5	91.51%	90,343	98.77%	52	69	
(PVG) Shanghai Pudong International Airport	6	91.04%	149,965	98.35%	55	226	
(KMG) Kunming Changshui International Air..	7	90.72%	114,927	97.99%	59	165	Total Routes 2,621
(WUH) Wuhan Tianhe International Airport	8	89.44%	64,696	97.67%	50	111	
(SCL) Arturo Merino Benitez Airport	9	89.41%	50,979	94.77%	47	64	
(PEK) Beijing Capital International Airport	10	89.15%	187,489	98.21%	51	249	On-Time Departures 87.07%
(SZX) Shenzhen Bao'an International Airport	11	88.94%	114,474	98.54%	53	175	
(DLC) Dalian Zhoushuizi International Airport	12	88.80%	49,377	97.67%	52	102	
(XIY) Xianyang International Airport	13	88.73%	112,757	97.99%	64	195	Tracked Flights 96.26%
(NNG) Nanning Airport	14	88.51%	36,330	96.61%	46	108	
(CKG) Chongqing Jiangbei International Air..	15	88.49%	102,244	97.52%	56	174	
(LED) Pulkovo Airport	16	88.33%	47,119	96.40%	50	161	
(HND) Haneda Airport	17	88.08%	146,008	97.99%	32	86	
(HNL) Daniel K. Inouye International Airport	18	88.07%	52,879	82.63%	21	56	
(SLC) Salt Lake City International Airport	19	88.05%	77,745	99.40%	62	103	
(FUK) Fukuoka Airport	20	88.02%	55,647	95.38%	24	54	

Relative Performance



Operational Highlights

	On-Time Departure	On-Time Arrival	Total Routes Served	Total Airlines Served
(SVO) Sheremetyevo International Airport	95.01%	85.69%	219	37
(PTY) Tocumen International Airport	93.41%	91.86%	87	18
(CAN) Guangzhou Baiyun International Airp..	92.52%	82.23%	191	74
(ITM) Itami Airport	91.55%	88.15%	26	5
(SHA) Shanghai Hongqiao International Airp..	91.51%	76.05%	69	25

LARGE AIRPORTS

Eight of the top ten large airports for on-time performance are based in China. Although on-time performance in China has historically been a challenge due to limited civilian airspace and conservative air traffic control regulations, the data this year indicates that air travel in China has greatly improved. The Chinese airline industry has experienced tremendous growth in the past two decades and it seems that airports are keeping pace with this growth and continuing to improve traveler experience.



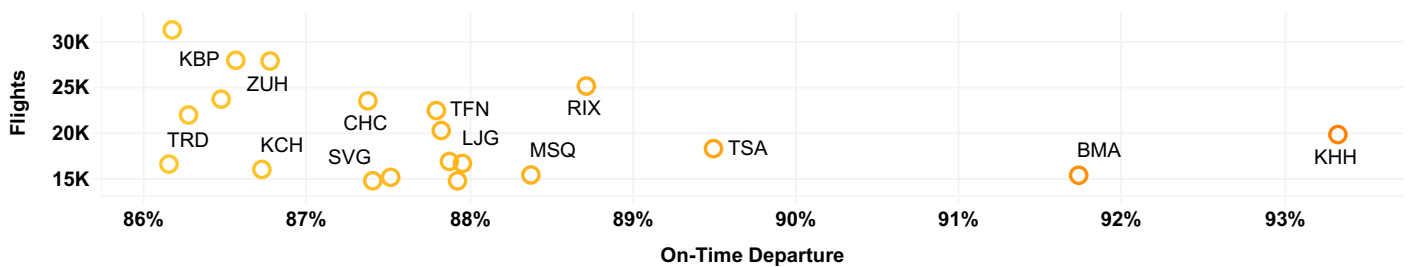
The On-Time Performance Review

Medium Airports

2019

	On-Time Ranking	On-Time Departure	Total Flights	Tracked Flights	Avg Dep Delay	Routes Served	Summary of Med. Airports
(KHH) Kaohsiung International Airport	1	93.32%	19,925	97.09%	31	42	Total Flights 405,873
(BMA) Bromma Airport	2	91.73%	15,464	94.85%	21	18	
(TSA) Taipei Songshan Airport	3	89.49%	18,382	87.18%	14	21	
(RIX) Riga International Airport	4	88.71%	25,243	88.38%	19	113	
(MSQ) Minsk National Airport	5	88.37%	15,497	93.02%	29	59	Total Seats 51.76M
(LJG) Lijiang Sanyi Airport	6	87.95%	16,760	96.92%	56	53	
(SDJ) Sendai Airport	7	87.92%	14,853	85.59%	12	16	
(BOI) Boise Air Terminal (Gowen Field)	8	87.87%	16,977	99.36%	59	20	
(KOJ) Kagoshima Airport	9	87.82%	20,369	88.20%	14	21	Total Routes 852
(TFN) Tenerife North Airport	10	87.79%	22,557	97.65%	32	28	
(RNO) Reno/Tahoe International Airport	11	87.51%	15,237	98.05%	56	22	
(SVG) Stavanger Airport Sola	12	87.40%	14,861	97.60%	35	35	
(CHC) Christchurch International Airport	13	87.37%	23,623	84.27%	14	23	On-Time Departures 81.34%
(ZUH) Zhuhai Jinwan Airport	14	86.77%	27,990	98.03%	52	74	
(KCH) Kuching International Airport	15	86.72%	16,104	90.04%	29	16	
(KBP) Boryspil International Airport	16	86.56%	28,066	84.73%	26	126	
(BGO) Bergen Airport	17	86.47%	23,809	96.42%	30	59	Tracked Flights 93.01%
(JAX) Jacksonville International Airport	18	86.27%	22,072	97.88%	64	33	
(AEP) Jorge Newbery Airport	19	86.17%	31,397	87.49%	28	39	
(TRD) Trondheim Airport Vaernes	20	86.15%	16,688	97.45%	35	34	

Relative Performance



Operational Highlights

	On-Time Departure	On-Time Arrival	Total Routes Served	Total Airlines Served
(KHH) Kaohsiung International Airport	93.32%	79.88%	42	28
(BMA) Bromma Airport	91.68%	94.10%	18	4
(TSA) Taipei Songshan Airport	89.49%	82.08%	21	15
(RIX) Riga International Airport	88.71%	84.97%	113	24
(MSQ) Minsk National Airport	88.34%	80.17%	59	16

MEDIUM AIRPORTS

With nearly 83 operations each day in 2019, Kaohsiung International Airport (KHH) was a kind partner to almost 30 carriers who offered service to more than 42 destinations throughout Asia. While only operating from one runway, airport management has been able to keep congestion at Taiwan's second-largest airport to a minimum—as evidenced by its on-time departure rate of 93.32%. KHH has experienced growth in aircraft movements of over 5% annually since 2013, and with their excellent performance record, we can only assume that great things will continue to come for those flying in and out of KHH.



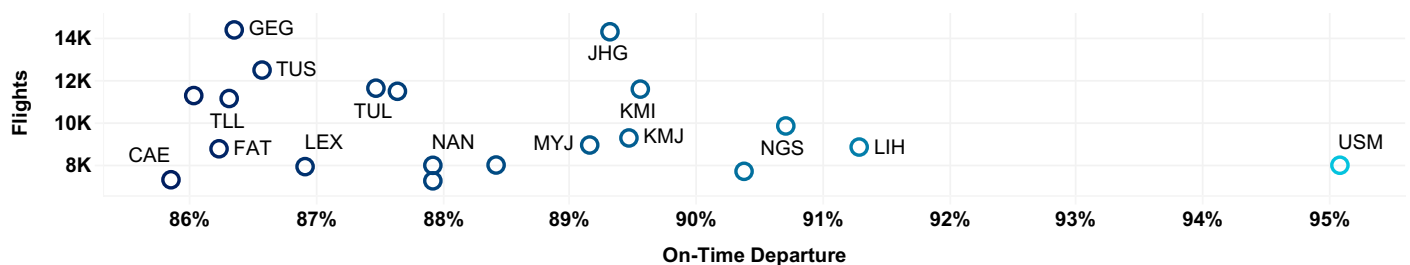
The On-Time Performance Review

Small Airports

2019

	On-Time Ranking	On-Time Departure	Total Flights	Tracked Flights	Avg Dep Delay	Routes Served	Summary of Med. Airports
(USM) Koh Samui Airport	1	95.08%	8,085	89.56%	15	11	Total Flights 199,802
(LIH) Lihue Airport	2	91.28%	8,939	99.66%	82	13	
(NGS) Nagasaki Airport	3	90.70%	9,930	89.11%	14	13	
(UYN) Yulin Yuyang Airport	4	90.37%	7,799	97.72%	71	31	
(KMI) Miyazaki Airport	5	89.55%	11,659	94.99%	20	9	Total Seats 23.12M
(KMJ) Kumamoto Airport	6	89.46%	9,366	90.20%	16	15	
(JHG) Xishuangbanna Gasa Airport	7	89.31%	14,351	96.94%	52	40	
(MYJ) Matsuyama Airport	8	89.15%	9,035	94.75%	22	12	
(COR) Ingeniero Aeronautico Ambrosio L.V...	9	88.41%	8,096	85.79%	26	29	Total Routes 404
(MHT) Manchester Boston Regional Airport	10	87.91%	7,353	98.75%	62	12	
(NAN) Nadi International Airport	10	87.91%	8,081	95.20%	38	33	
(DSM) Des Moines International Airport	12	87.63%	11,557	98.72%	70	22	
(TUL) Tulsa International Airport	13	87.46%	11,703	99.04%	64	15	On-Time Departures 84.53%
(LEX) Blue Grass Airport	14	86.90%	8,020	98.95%	67	15	
(TUS) Tucson International Airport	15	86.56%	12,553	98.87%	65	23	
(GEG) Spokane International Airport	16	86.34%	14,439	98.70%	56	17	
(TLL) Tallinn Airport	17	86.30%	11,218	90.93%	26	53	Tracked Flights 95.46%
(FAT) Fresno Yosemite International Airport	18	86.22%	8,858	94.65%	57	14	
(MYJ) Miri Airport	19	86.02%	11,356	97.66%	44	17	
(CAE) Columbia Metropolitan Airport	20	85.84%	7,404	98.92%	64	10	

Relative Performance



Operational Highlights

	On-Time Departure	On-Time Arrival	Total Routes Served	Total Airlines Served
(USM) Koh Samui Airport	95.08%	92.23%	11	4
(LIH) Lihue Airport	91.28%	90.04%	13	7
(NGS) Nagasaki Airport	90.70%	89.06%	13	10
(UYN) Yulin Yuyang Airport	90.37%	82.42%	31	14
(KMI) Miyazaki Airport	89.55%	88.80%	9	9

SMALL AIRPORTS

Built by Bangkok Airways, Koh Samui International Airport (USM) is the perfect gateway to travelers seeking adventure on Thailand's Chaweng Island. USM's five carriers enjoy a high on-time departure rate of 95.08%--which is several percentage points better than its next best challenger in this category. Three of the top ten airports in this category are located in Japan, including (UYN) Yulin Yuyang Airport, (NGS) Nagasaki Airport, (KMI) Miyazaki Airport, (KMJ) Kumamoto Airport and (MYJ) Matsuyama Airport. This category also saw a tie for tenth place with Manchester Boston Regional Airport (MHT) and Nadi International Airport (NAN) both achieving 87.91% on-time departures.



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Our vision is to shape an intelligent future where traveling becomes smarter. As a neutral partner in the industry, we rank airlines and airports from an independent position.

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“88% of Delta’s flights nationwide arrived on time in September, according to Cirium’s on-time performance data.”

“According to the air travel data and analytics company Cirium, 88% of Delta’s flights nationwide arrived on-time in September.”

“Cirium’s airline on-time performance analysis shows 88% of Delta’s flights nationwide arrive on-time in September.”



For questions about citing Cirium’s on-time performance analysis, please contact Rachel Humphries at Rachel.Humphries@Cirium.com.

GLOSSARY OF TERMS

AIRLINE CODE	The IATA code for the airline. For the International and Major Airline categories, this is the code of the Marketing Airline. For the Low Cost category, either the operating code or the marketing code is used.
ON-TIME RANKING	For each list of airlines, on-time arrival performance is ranked where a rank of 1 equates to the best performance.
COVERAGE	The percentage of published flights for which we have an actual arrival gate time against which we can measure a flight's performance versus its schedule.
TOTAL FLIGHTS	The number of scheduled flight operations during the month where each flight operation is a single segment flight consisting of one origin and one destination.
SEATS (MILLIONS)	The estimated seat capacity of all scheduled flights
AVAILABLE SEAT KILOMETERS (ASK)	The number of seats available multiplied by the number of kilometers flown.
TRACKED FLIGHTS	The percentage of published flights for which Cirium tracked an actual gate arrival time, cancelation or diversion.
BLOCK TIME	Referred to as BO. The percentage of flights that were completed within their scheduled time.
COMP. FACTOR	Completion factor which is the percentage of tracked flights that were completed (e.g., not canceled)
ON-TIME DEPARTURE	The percentage of completed flights that departed the gate on-time where on-time is defined as less than 15 minutes of scheduled gate departure time.
ON-TIME ARRIVAL	The percentage of completed flights that arrived at the gate on-time where on-time is defined as less than 15 minutes of scheduled gate arrival time. The On-time Arrival Ranking is used to determine the winner in each category.
AVG. DEP. DELAY	The average departure delay, in minutes, for all delayed flights. The delay minutes for on-time flights are not included in this calculation.
AVG. ARRIVAL DELAY	The average arrival delay, in minutes, for all flights with delays 15 minutes or greater. The delay minutes for on-time flights are not included in this calculation.
AVG. DELAY WHEN LATE	The total number of minutes a flight was delayed past the scheduled time on average.
MAINLINE	A system of flights that are operated by a major airline and does not include airline partners
NETWORK	A system of flights that are flown by a major airline and include the flights that are marketed by the airline but are operated by a separate airline partner

Report Calculation



600
global sources

We examine our flight status and arrival data curated from over 600 global sources, including published schedules, government agencies, civil aviation authorities, airlines, airports, and major airline reservation systems.

Our data processing team has logic, processes and protections in place to corroborate the information we gather from more than 100,000 operated commercial flights per day. Our categories for this report are grouped into three areas: Global, Major (by region), and Low Cost Carriers. A ranking is given for network and mainline operations in the Global and Major (by region) categories. There is an 80% coverage requirement for the Major (by region) and Low Cost Carrier categories. A 90% coverage requirement is applied to the Global category.



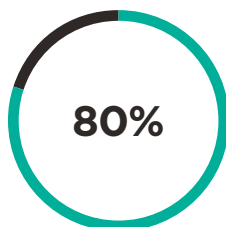
100,000
operated
commercial flights
per day

Available Seat Kilometers (ASK)—the number of seats available multiplied by the number of kilometers flown—are a key part of our evaluation of category criteria. This captures the total flight passenger capacity of an airline in kilometers.

For the Global Airlines category, we consider the top 10% of all airlines by size—i.e., an airline must fall in the top 10% of airlines by number of flights, seats, and ASK—and these airlines must serve a minimum of three or more regions. A region is considered to be “served” if an airline operates on average at least one roundtrip per day to, from, or within that given region. An airline’s home country is used to determine the geography of the carrier and counts as one region served.

For Major Airlines by Region, the percentage of flights, seats and ASKs we consider varies by region to accurately reflect the size of operations in that region. For Asia Pacific and Europe, we consider the top 20% of airlines that operate in the region. Major airlines in Asia Pacific and Europe must fall in the top 20% for flights, seats, and ASKs to be considered. For North America, we consider the top 15% of airlines that operate in the region. Major airlines in North America must fall in the top 15% for flights, seats, and ASKs to be considered. For Latin America and Middle East & Africa, we consider the top 50% of airlines that operate in the region. Major airlines in Latin America and Middle East & Africa must fall in the top 50% for flights, seats, and ASKs to be considered.

The Low Cost Carrier (LCC) category reviews airlines that are industry recognized and/or self-identified low cost carriers. For this category, we consider the top 90% of LCC airlines. LCC airlines must fall in the top 90% for flights, seats, and destinations to be considered.



coverage
requirement

Major (by region) Low Cost Carriers

Report Calculation

Each month Cirium reviews the total number of flights in a given month (approximately 3 million) for every airport in an ordered list, then looks at where the percentile demarcations fall. For the annual OTP review, we take the total number of flights in a given year for every airport.

Airports are selected based on a combination of factors, including:

Global Airport

- Top 10% by total flights served in a month
- Actual gate departure coverage 80% or better
- Must serve at least 3 regions (inclusive of its own)

Large Airport

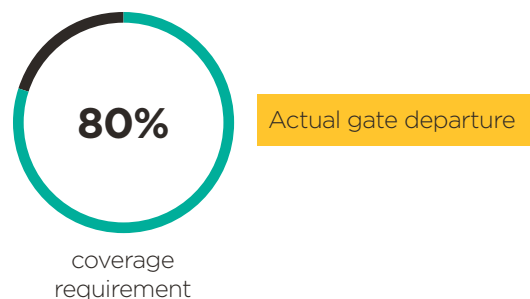
- Top 25% by total flights served in a month
- Actual gate departure coverage 80% or better
- Note: this category can include airports in the global airport category

Medium Airport

- Between 50th and 75th percentile by total flights served in a month
- Actual gate departure coverage 80% or better

Small Airport

- Between 25th and 50th percentile by total flights served in a month
- Actual gate departure coverage 80% or better



Report Guide

SUMMARY OF TOP PERFORMERS

This section is a high-level summary of the flights flown by the 10 airlines ranked in the report category.

Summary of Top Performers

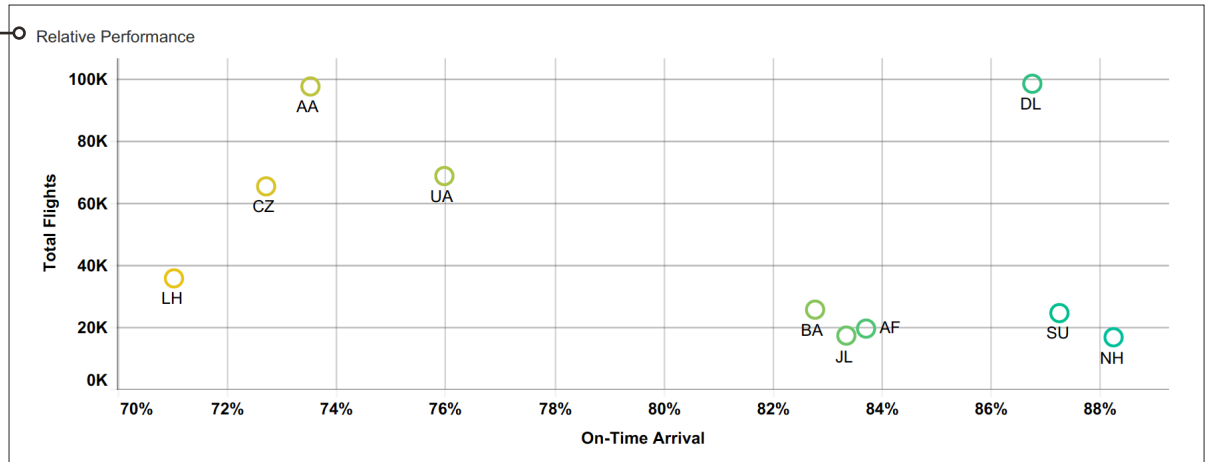
Total Flights
814,097

Total Tracked Flights
95.64%

Total On-Time Arrivals
83.78%

RELATIVE PERFORMANCE

This graph shows the volume of flights flown by each airline compared to their on time performance for the month.



Operational Highlights

	Completion Factor	Within Block Time	On-Time Arrival	On-Time Departure
Delta Air Lines	<div></div> 99.53%	<div></div> 78.78%	<div></div> 89.07%	<div></div> 89.79%
Southwest Airlines	<div></div> 98.33%	<div></div> 82.73%	<div></div> 88.84%	<div></div> 87.68%
American Airlines	<div></div> 98.66%	<div></div> 77.44%	<div></div> 85.03%	<div></div> 85.39%
Emirates	<div></div> 99.93%	<div></div> 75.05%	<div></div> 84.51%	<div></div> 81.67%
United Airlines	<div></div> 98.66%	<div></div> 73.76%	<div></div> 81.77%	<div></div> 83.18%

OPERATIONAL HIGHLIGHTS

These bar graphs compare key performance metrics among the top five airlines in a category.

Report Guide

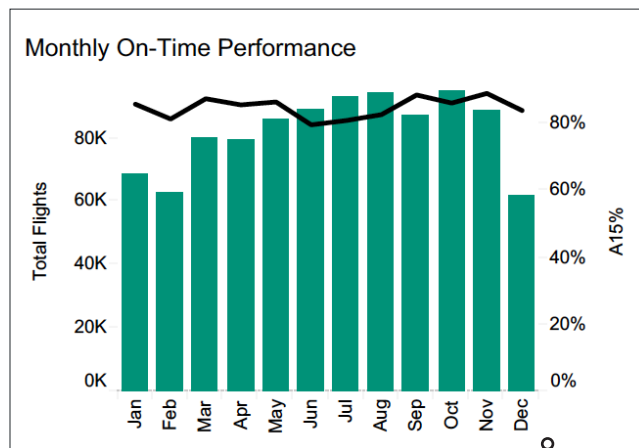
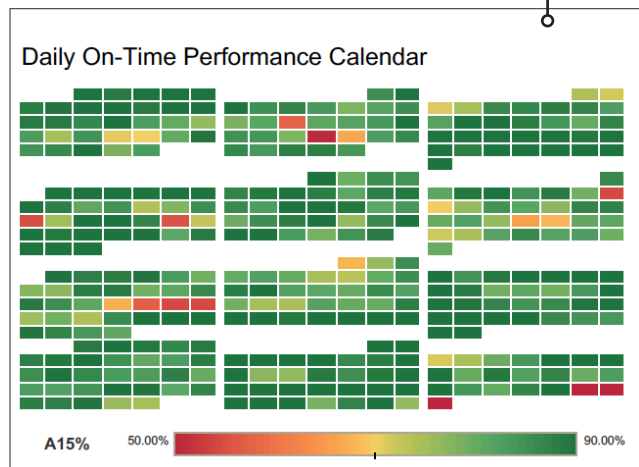
OVERVIEW

This section is a high-level summary of the past year, which includes the on-time arrival metric for the airline, the number of aircraft in use, number of flights that were scheduled, the average number of hours each aircraft was flown, and the total distance flown by all aircraft in use.

On Time Arrival Rate 84.86%	Active Tails 931	Total Flights Scheduled 986,072	Avg Daily Utilization (per Tail) 9.06 hr	Total Distance Flown 1,818.93M km
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DAILY OTP

This graphic provides a 12-month daily view of an airline's on-time performance with each shaded box representing a single day in each month. The scale shows the correlation between color and the on-time arrival percentage of the day. Green indicates high on-time arrival, orange indicates fair on-time arrival and red indicates low on-time arrival.



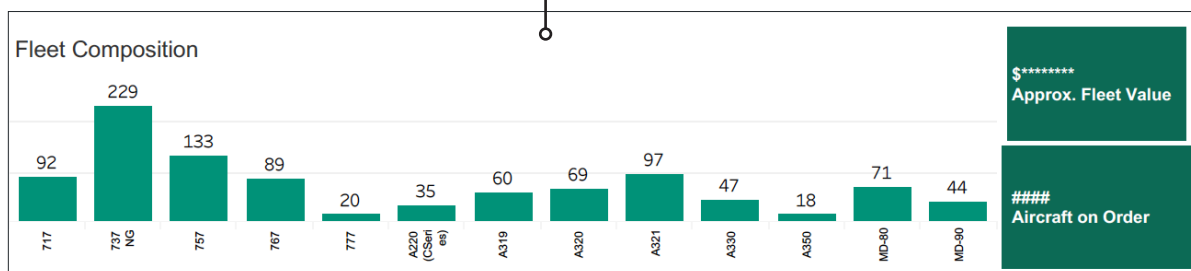
MONTHLY OTP

This bar graph provides a 12-month view of an airline's on-time performance and total flights per month.

Report Guide

FLEET COMPOSITION

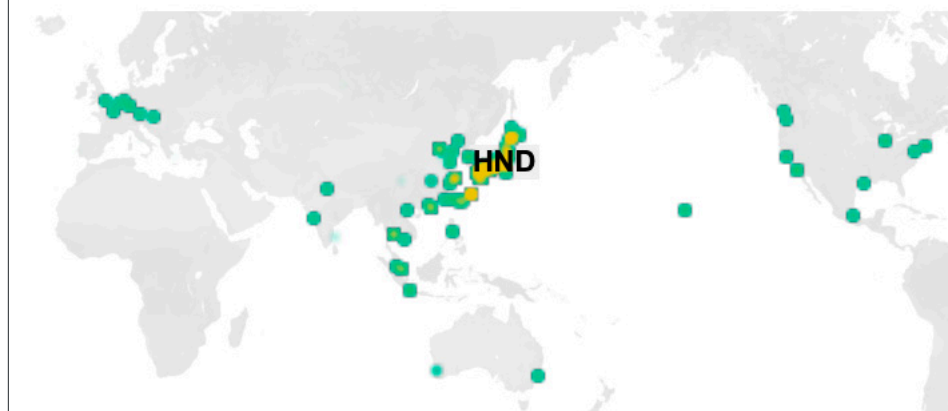
This section provides a view into an airline's fleet makeup. The bar graph demonstrates how many of each aircraft type of currently active in the airline's fleet. The figures in the green boxes to the side show how many aircraft are on order and the approximate total value of the fleet.



AIRPORT HUB GROUPING

This map displays a global view of the airports the airline serves, with its main airport hub indicated by its airport code.

Airport Hub Grouping



MOST FLOWN ROUTES

This section displays the top five most flown routes for the airlines, including the number of flights, number of seats and on-time performance for each route. The total number of arriving flights and departing flights in the year and the airline's origin country are also listed.

Most Flown Routes

	Flights	Seats	A15%
HND - FUK	6,070	2,010K	88.49%
FUK - HND	6,004	1,974K	80.79%
CTS - HND	5,751	2,199K	84.73%
HND - CTS	5,504	2,148K	83.51%
HND - ITM	5,111	1,609K	89.44%

Operator
Country:
Japan

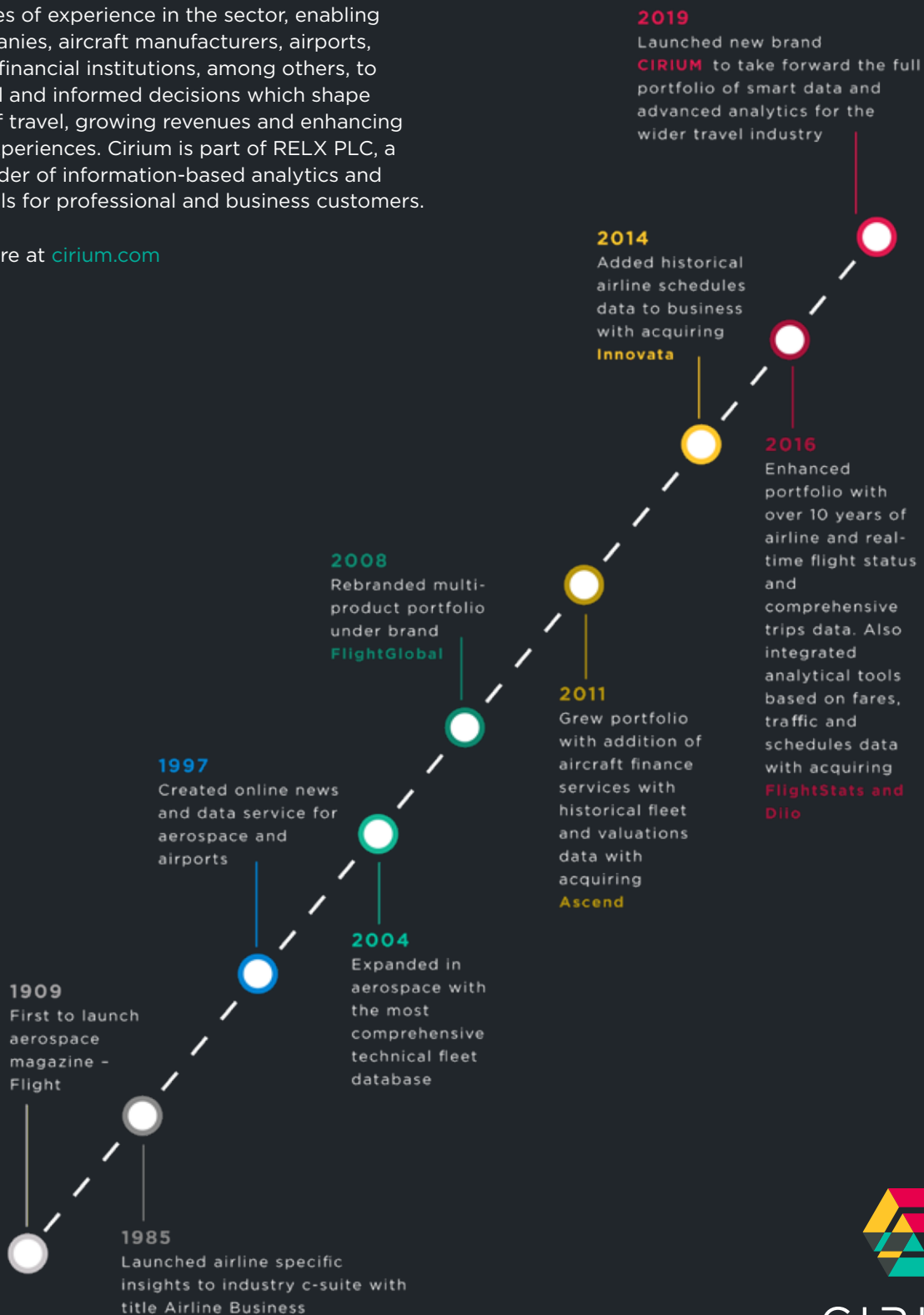
169,601
Arriving Flights

169,635
Departing Flights

About Cirium

Cirium brings together powerful data and analytics to keep the world in motion. Delivering insight, built from decades of experience in the sector, enabling travel companies, aircraft manufacturers, airports, airlines and financial institutions, among others, to make logical and informed decisions which shape the future of travel, growing revenues and enhancing customer experiences. Cirium is part of RELX PLC, a global provider of information-based analytics and decision tools for professional and business customers.

Find out more at cirium.com



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