

## GANP KPIs

#	Title	Definition	Measurement Units	Objects Characterized	Data Requirement	Data Feed Providers
<b>KPI01</b>	Departure punctuality	Percentage of flights departing from the gate on-time (compared to schedule).	% of scheduled flights	The KPI is typically computed for traffic flows, individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each departing scheduled flight: <ul style="list-style-type: none"> <li>- Scheduled time of departure (STD) or Scheduled off-block time (SOBT)</li> <li>- Actual off-block time (AOBT)</li> </ul>	Schedule database(s), airports, airlines and/or ANSPs
<b>KPI02</b>	Taxi-out additional time	Actual taxi-out time compared to an unimpeded/reference taxi-out time.	Minutes/flight	The KPI is typically computed for individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each departing flight: <ul style="list-style-type: none"> <li>- Actual off-block time (AOBT)</li> <li>- Actual take-off time (ATOT)</li> </ul> In addition, for the advanced KPI variant: <ul style="list-style-type: none"> <li>- Departure gate ID</li> <li>- Take-off runway ID</li> </ul>	Airports (airport operations, A-CDM), airlines (OOOI data), ADS-B data providers and/or ANSPs
<b>KPI03</b>	ATFM slot adherence	Percentage of flights taking off within their assigned ATFM slot (Calculated Take-Off Time Compliance).	% of flights subject to flow restrictions	The KPI is typically computed for individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each departing IFR flight subject to an ATFM regulation: <ul style="list-style-type: none"> <li>- Calculated Take-Off Time (CTOT)</li> <li>- Actual take-off time (ATOT)</li> </ul>	Airports, ATFM service
<b>KPI04</b>	Filed flight plan en-route extension	Flight planned en-route distance compared to a reference ideal trajectory distance.	% excess distance	The KPI can be computed for any volume of en-route airspace; this implies that it can be computed at State level (covering the FIRs of a State).	For each flight plan: <ul style="list-style-type: none"> <li>- Departure airport (Point A)</li> <li>- Destination airport (Point B)</li> <li>- Entry point in the 'Reference area' (Point O)</li> <li>- Exit point from the 'Reference area' (Point D)</li> <li>- Entry points in the 'Measured areas' (Points N)</li> <li>- Exit points from the 'Measured areas' (Points X)</li> <li>- Planned distance for each NX portion of the flight</li> </ul>	ANSPs

<b>KPI05</b>	Actual en-route extension	Actual en-route distance flown compared to a reference ideal distance.	% excess distance	The KPI can be computed for a traffic flow or a volume of en-route airspace; this implies that it can be computed at State level (covering the FIRs of a State).	For each actual flight trajectory: <ul style="list-style-type: none"> <li>- Departure airport (Point A)</li> <li>- Destination airport (Point B)</li> <li>- Entry point in the 'Reference Area' (Point O)</li> <li>- Exit point from the 'Reference Area' (Point D)</li> <li>- Entry points in the 'Measured Areas' (Points N)</li> <li>- Exit points from the 'Measured Areas' (Point X)</li> <li>- Distance flown for each NX portion of the actual flight trajectory, derived from surveillance data (radar, ADS-B...).</li> </ul>	ANSPs, ADS-B data providers
<b>KPI06</b>	En-route airspace capacity	The maximum volume of traffic an airspace volume will safely accept under normal conditions in a given time period.	Variant 1: Movements/hr Variant 2: Number of aircraft (occupancy count)	The KPI is typically used at the level of individual sectors (sector capacity) or en-route facilities (ACC capacity).	The various capacities are determined by the ANSP, and are dependent on traffic pattern, sector configuration, ATCO and system capability, etc.	ANSPs
<b>KPI07</b>	En-route ATFM delay	ATFM delay attributed to flow restrictions in a given en-route airspace volume	Minutes/flight	The KPI can be computed for any volume of en-route airspace which participates in the ATFM process.	For each IFR flight: - Estimated Take-off Time (ETOT) computed from the last filed flight plan - Calculated Take-off Time (CTOT) - ID of the flow restriction generating the ATFM delay - Airspace volume associated with the flow restriction - Delay code associated with the flow restriction	ATFM
<b>KPI08</b>	Additional time in terminal airspace	Actual terminal airspace transit time compared to an	Minutes/flight	The KPI is typically computed for individual airports, or clusters of airports	For each arriving flight:	Airlines (OOOI data), airports, ADS-B data providers and/or ANSPs

		unimpeded time. Actual trajectories are generally longer in time and distance due to path stretching and/or holding patterns. In the example below the unimpeded trajectories are shown in red, and the actual trajectories in green and blue. See Figure 1: Terminal trajectories.		(selection/grouping based on size and/or geography).	<ul style="list-style-type: none"> <li>- Terminal airspace entry time, computed from surveillance data (radar, ADS-B...)</li> <li>- Actual landing time (ALDT)</li> <li>- In addition, for the advanced KPI variants:</li> <li>- Terminal airspace entry segment, computed from surveillance data (radar, ADS-B...)</li> <li>- Landing runway ID</li> </ul>	
<b>KPI09</b>	Airport peak capacity	The highest number of operations an airport can accept in a one-hour time frame (also called declared capacity). Can be computed for arrivals, departures or arrivals + departures.	Number of departures / hour, Number of landings / hour, Number of (departures + landings) / hour	The KPI is computed for individual airports.	Scheduling parameters for slot controlled airports Airport Acceptance Rates (AAR), Airport Departure Rates (ADR)	Airports
<b>KPI10</b>	Airport peak throughput	The 95th percentile of the hourly number of operations recorded at an airport, in the “rolling” hours sorted from the least busy to the busiest hour. Can be computed for arrivals, departures or arrivals + departures.	Number of departures / hour, Number of landings / hour, Number of (departures + landings) / hour	The KPI is computed for individual airports.	For each flight: <ul style="list-style-type: none"> <li>- Actual landing time (ALDT)</li> <li>- Actual take-off time (ATOT).</li> </ul>	Airports
<b>KPI11</b>	Airport throughput efficiency	Airport throughput (accommodated demand) compared to	Average Over/Under Delivery or %	The KPI is computed for individual airports.	For each arriving and/or departing flight:	Airports

		capacity or demand, whichever is lower. Can be computed for arrivals, departures or arrivals + departures.	of accommodated operations.		<ul style="list-style-type: none"> <li>- Actual landing time (ALDT) and take-off time (ATOT)</li> <li>- Estimated landing time (ELDT) and take-off time (ETOT) (from flight plan)</li> </ul> For each time interval: <ul style="list-style-type: none"> <li>- Declared landing capacity of the airport</li> <li>- Declared departure capacity of the airport</li> <li>- Declared total capacity of the airport</li> </ul>	
<b>KPI12</b>	Airport/Terminal ATFM delay	ATFM delay attributed to arrival flow restrictions at a given airport and/or associated terminal airspace volume.	Minutes/flight	The KPI is typically computed for individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each IFR flight: <ul style="list-style-type: none"> <li>- Estimated Take-off Time (ETOT) computed from the last filed flight plan</li> <li>- Calculated Take-off Time (CTOT)</li> <li>- ID of the flow restriction generating the ATFM delay</li> <li>- Airport or terminal airspace volume associated with the flow restriction</li> <li>- Delay code associated with the flow restriction</li> </ul>	ATFM
<b>KPI13</b>	Taxi-in additional time	Actual taxi-in time compared to an unimpeded/reference taxi-in time	Minutes/flight	The KPI is typically computed for individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each arriving flight: <ul style="list-style-type: none"> <li>Actual landing time (ALDT)</li> <li>Actual in-block time (AIBT)</li> </ul> In addition, for the advanced KPI variant: <ul style="list-style-type: none"> <li>Landing runway ID</li> <li>Arrival gate ID</li> </ul>	Airports (airport operations), airlines (OOOI data), ADS-B data providers and/or ANSPs
<b>KPI14</b>	Arrival punctuality	Percentage of flights arriving at the gate on-	% of scheduled flights	The KPI is typically computed for traffic flows, individual airports, or clusters of airports	For each arriving scheduled flight:	Schedule database(s), airports, airlines and/or ANSPs

		time (compared to schedule)		(selection/grouping based on size and/or geography).	<ul style="list-style-type: none"> <li>- Scheduled time of arrival (STA) or Scheduled in-block time (SIBT)</li> <li>- Actual in-block time (AIBT)</li> </ul>	
<b>KPI15</b>	Flight time variability	Distribution of the flight (phase) duration around the average value.	Minutes/flight	The KPI is typically computed for the scheduled traffic flows interconnecting a given cluster of airports (two or more; selection/grouping based on size and/or geography).	<p>For each flight:</p> <ul style="list-style-type: none"> <li>- OOOI data: gate “out” (AOBT), wheels “off,” wheels “on,” and gate “in” (AIBT) actual times.</li> </ul>	Airlines
<b>KPI16</b>	Additional fuel burn	Additional flight time/distance and vertical flight inefficiency converted to estimated additional fuel burn attributable to ATM	kg fuel/flight	This KPI is a conversion of the additional flight time/distance and vertical flight inefficiency KPIs to a corresponding (estimated) additional fuel consumption; hence it describes a performance characteristic of the same objects as the additional flight time/distance and vertical flight inefficiency KPIs: en-route airspace, terminal airspace and airports. Typically the KPI is published at the level of a State or (sub)region.	<p>Indicator values to be converted to estimated additional fuel burn:</p> <ul style="list-style-type: none"> <li>- KPI02 Taxi-Out Additional Time (min/flight)</li> <li>- KPI13 Taxi-In Additional Time (min/flight)</li> <li>- KPI05 Actual en-Route Extension (%) &amp; average en-route distance flown (km/flight)</li> <li>- KPI08 Additional time in terminal airspace (min/flight)</li> <li>- KPI17 Level-off during climb</li> <li>- KPI18 Level capping during cruise &amp; average cruise (ToC-ToD) distance flown (km/flight)</li> <li>- KPI19 Level-off during descent</li> </ul>	Performance analysts
<b>KPI17</b>	Level-off during climb	Distance and time flown in level flight before Top of Climb.	NM/flight and minutes/flight	The KPI is typically computed for traffic flows, individual airports, or clusters of airports (selection/grouping based on size and/or geography).	<ul style="list-style-type: none"> <li>- For each flight trajectory:</li> <li>- 4D data points (latitude, longitude, altitude and time)</li> <li>- Departure airport ARP coordinates</li> <li>-</li> </ul>	Trajectory data providers (reporting archived actual trajectories based on ADS-B and/or other surveillance data sources) and/or ANSPs.

<b>KPI18</b>	Level capping during cruise	Flight Level difference between maximum Flight Levels on a measured airport pair and maximum Flight Levels on similar unconstrained airport pairs.	Flight Levels/flight	The KPI is typically computed for traffic flows on individual airport pairs or groups of airport pairs (weighted average).	For each flight trajectory: <ul style="list-style-type: none"> <li>- Maximum cruise Flight Level</li> <li>- Departure airport</li> <li>- Arrival airport</li> </ul>	For variant 1: ANSPs; For variant 2: Trajectory data providers (reporting archived actual trajectories based on ADS-B and/or other surveillance data sources) and/or ANSPs
<b>KPI19</b>	Level-off during descent capping during cruise	Distance and time flown in level flight after Top of Descent.	NM/flight and minutes/flight	The KPI is typically computed for traffic flows, individual airports, or clusters of airports (selection/grouping based on size and/or geography).	For each flight trajectory: <ul style="list-style-type: none"> <li>- 4D data points (latitude, longitude, altitude and time)</li> <li>- Arrival airport ARP coordinates</li> </ul>	Trajectory data providers (reporting archived actual trajectories based on ADS-B and/or other surveillance data sources) and/or ANSPs.

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