



ICAO PARIS UNITING AVIATION

ICAO EUR Regional Performance Framework development and implementation

ASBU Symposium, Marrakech 10-13 Dec 2018



ICAO EUR Regional Performance Framework

- ICAO EUR Region has defined a performance framework which is aimed at monitoring/reporting performance in the EUR Region
- Framework was launched in 2010
- Built on existing ICAO documents and regional initiatives (in particular EU Performance Scheme)
- Objective is:
 - promote the PBA culture within the Region
 - identify areas where improvements are possible
- Also accepted as a good practice at ICAO HQ and other Regions
- Implemented first time in 2016 based on performance results from 2015 (19 States participating)
- 2017 report with increased participation from 27 States



Input

- ✓ ICAO framework
- ✓ EU-ECTL (Single European Sky and Performance Scheme)
- ✓ FAA
- ✓ Russian Federation
- ✓ ICAO EUR Workshops (Rome, Bishkek, Baku)

Pragmatic approach in developing the proposal

Output

- ✓ Development of a comprehensive framework
- ✓ Identification of 6 KPAs out of 11 ICAO KPAs
- ✓ Definition of focus areas, objectives and KPIs
- ✓ Definition of Processes, Roles and Responsibilities
- ✓ Contextual information
- ✓ Guidance material



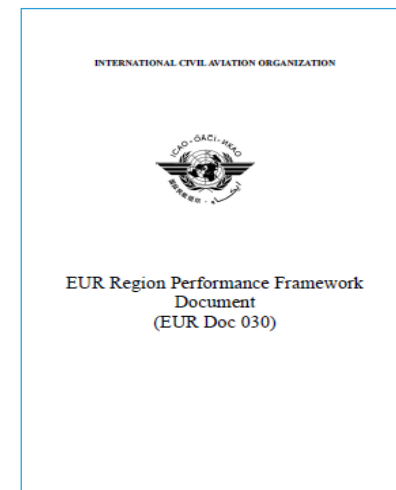
To assess the Regional performance and to identify areas where improvements are possible



ICAO Performance Framework Document

ICAO EUR Doc 030 describes the performance Framework (available in English/Russian language)

- Introduction
- Background
- Relationship with ICAO Global developments
- Relationship with the EU Performance Scheme
- Geographical scope
- Roles and responsibilities
- KPAs/KPIs/Metrics
- Monitoring and reporting at regional/national level
- Guidance material





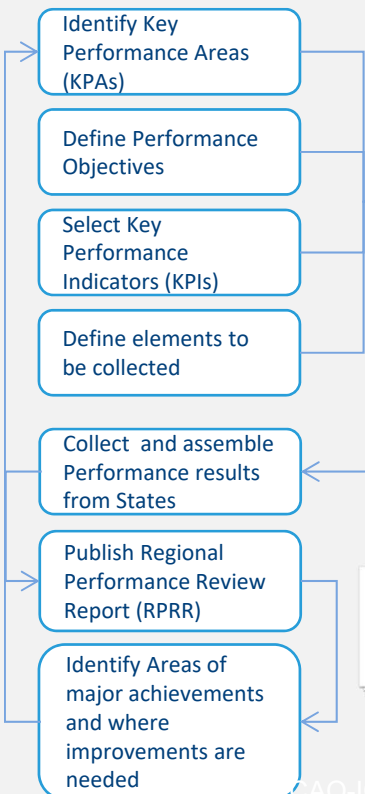
KPAs-KPIs

KPA	OBJECTIVES	FOCUS AREAS	INDICATORS
SAFETY	Ensure safety continuous improvement through reduction of ATM related safety occurrences and implementation of uniform safety standards		Effectiveness of Safety Management (Safety Maturity Questionnaire)
			Level of State Safety/Just culture (Safety Culture Questionnaire)
			Adoption of an harmonized occurrences severity classification methodology
CAPACITY	Capacity meets demand for en-route and at airports	En-route ATFM Delay	Average en-route ATFM delay generated by airspace volume
		Airport ATFM Delay	Average ATFM delay per flight in the main airports (to be identified by States)
EFFICIENCY	Ensure users may use most efficient routes	Horizontal Flight Efficiency	Average horizontal en route flight efficiency (length of the en route part of the actual trajectory/last flight planned route vs great circle)
ENVIRONMENT	Contribute to the protection of environment (fuel/CO2 emissions reduction)		CO2 emissions related to inefficiencies in route extension
COST EFFECTIVENESS	Contribute to optimization of costs for ANS	ATCO Productivity	IFR Flights (en-route) per ATCO hour duty
			IFR flight hours per ATCO hour on duty
			IFR movements per ATCO hour on duty
PARTICIPATION BY ATM COMMUNITY	Ensure States' participation to Regional planning and implementation activities		Level of participation to meetings
			Level of responses to planning activities
			Level of provision of performance results





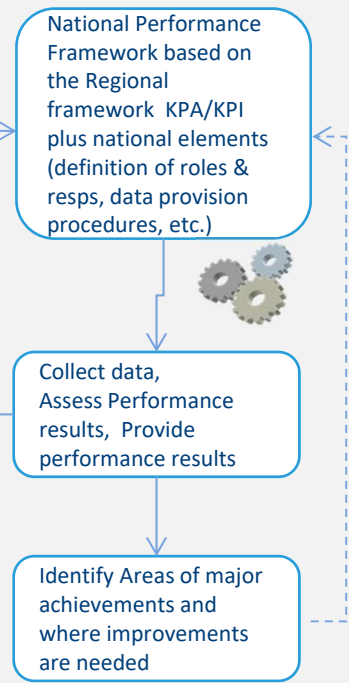
Performance Process Flow Diagram of Regional activities



Regiona



Performance Process Flow Diagram of National activities





ICAO EUR Regional Performance Report 2018

- ICAO EUR Workshop in Moscow on 29-30 May
- ICAO SL in mid June requesting States to provide performance results by mid September
- agreement between ICAO, the European Commission, EASA and EUROCONTROL, with the aim to avoid duplication of efforts for the concerned States
- Performance TF meeting on 12 November to assess participation and prepare the report for submission to European Air Navigation Planning Group (26 to 30 November 2018)
- Extension of deadline for State`s submission to 16 November 2018
- Last State reports recieved on 30 November.....





ICAO EUR Regional Performance Report 2018

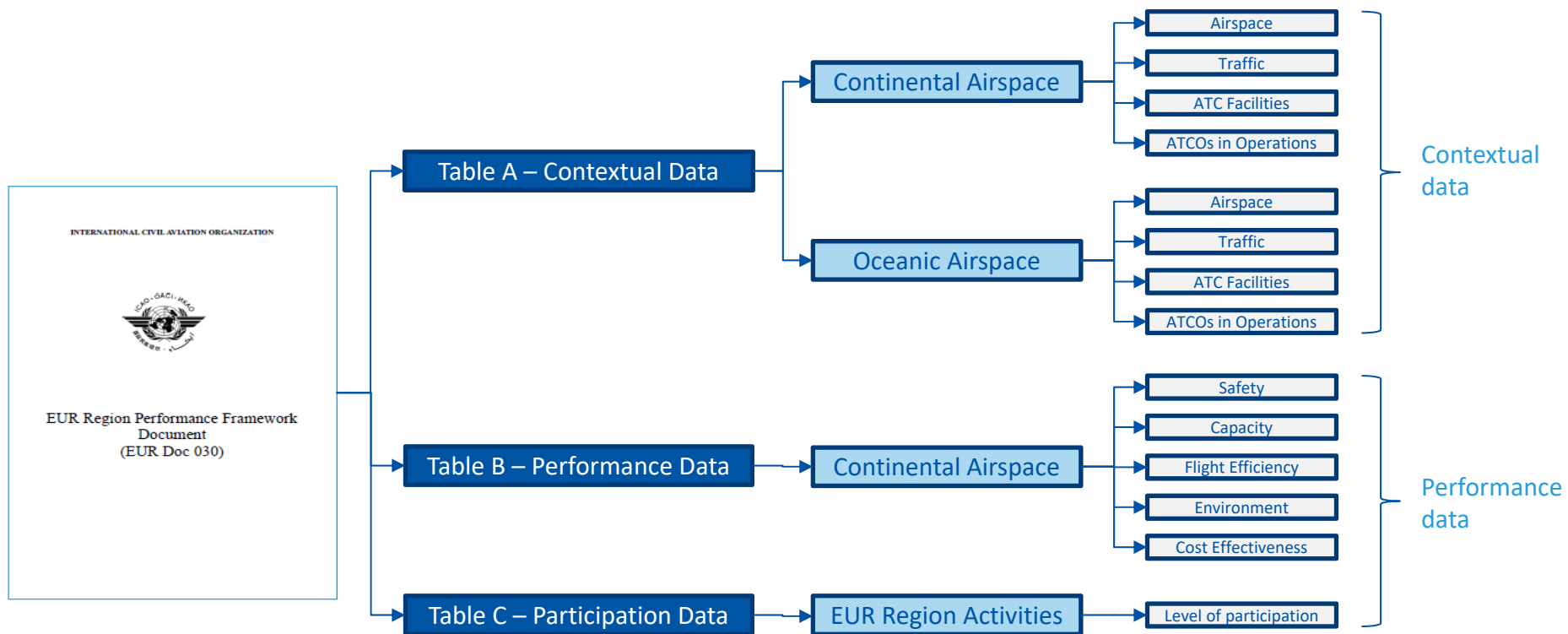
- 3rd Year of data collection
- ICAO EUR Doc 030 not changed
- Template and process not changed after last year's improvements
 - But expect new template with small editorial updates
- Same set of contextual data and indicators
- EUROCONTROL support to States to prefill the templates upon request
- States verify, correct and complete their prefilled template
- States submit their template to the ICAO secretariat
- EUROCONTROL supports the COG PERF TF to consolidate the submitted templates and generate graphs for the EANPG report



← Not applicable to Eastern States →

Table A Contextual data Year n-1	NM traffic data					
Table A Contextual data Year n-2	SEID reporting: Contextual data; traffic data; ATCO productivity	ACE data validation	EASA: provides safety data for 30 States to EUROCONTROL			
Table B Cost Effectiveness Year n-2						
Table B Safety Year n-1	SES reporting	EASA data verification	EUROCONTROL: creates pre-filled tables for 42 States	States: review prefilled data; accept or modify prefilled data; fill in own data when not prefilled; Submit to ICAO	ICAO forwards submitted templates to COG PERF TF	COG PERF TF loads templates into single data file, produces graphs, produces paper for EANPG
Table B Capacity Year n-1	NM ATFM delay		EUROCONTROL: provides pre-filled tables to States upon request			
Table B Flight Efficiency Year n-1	NM FPL and actual trajectories	Computation of distances				
Table B Environment Year n-1	ICAO default Fuel consumption					

EANPG





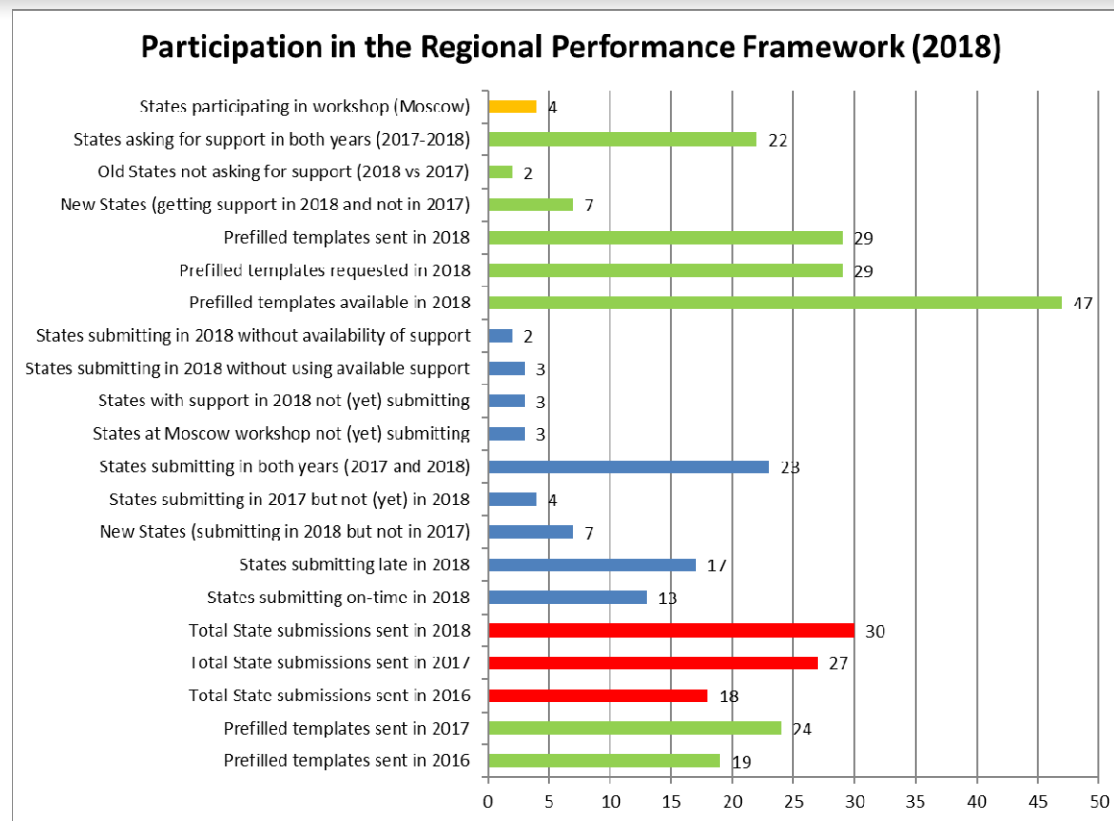
New guidance and support since original EUR Doc 030

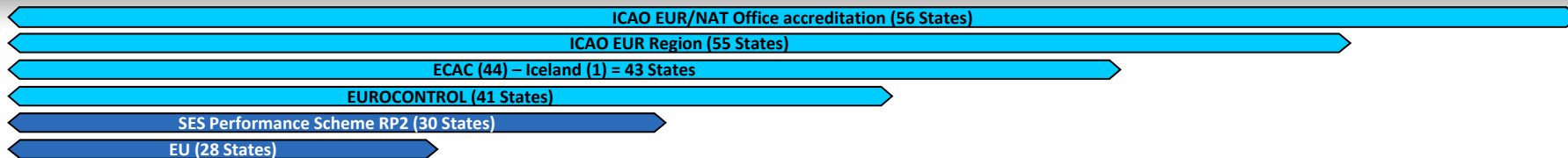
- Improved guidance to States on the submission process
 - State Letter clearly asks to send both the electronic version and a scan of the printed template
 - Improved electronic template leaves less room for interpretation and error (see next slide)
- Improved prefilling of the templates
 - Comment field clearly identifies the data source
 - Correctness & completeness improved (# of FIRs, CO2 emissions)
 - Support from EASA: provides the safety data for the 30 SES States
- More prefilled templates available
 - 39 → 42 (+ Morocco, Israel, MUAC)
- Regional Performance Framework Implementation Workshop
 - to assist States,
 - show what is done & possible with the submitted data, and
 - give opportunity to States to engage in a dialogue



Improved template

- Layout: 2 columns for 2 years
 - Clear guidance on what to report for which year
 - Purpose: consistency between States
 - 2015 = data related to Cost Effectiveness
 - 2016 = all the rest
 - black = not to be filled in
- Data validation
 - Improved protection against invalid data entry
- Version history
 - v 1.0 dd. 12-11-2013 – was published together with EUR Doc 030
 - v 1.1 dd. 24-04-2015 – was used for the 2016 data collection exercise
 - v 1.2 dd. 23-06-2017 – sent with the State Letter dd. 11-07-2017
 - Updated to take into account lessons learned from the 2016 exercise
 - v 1.3 dd. 11-08-2017 – used for sending first batch of prefilled templates
 - Safety: capability to distinguish between total # of incidents and # of incidents subject to RAT
 - v 1.4 dd. 05-09-2017 – last year's version
 - Horizontal Flight Efficiency: capability to prefill/submit both SUR and FPL data





MUAC	Austria	Italy	Norway	Albania	Azerbaijan	Algeria	Iceland
	Belgium	Latvia	Switzerland	Armenia	San Marino	Andorra	
	Bulgaria	Lithuania		Bosnia and Herzegovina		Belarus	
	Croatia	Luxembourg		Georgia		Israel	
	Cyprus	Malta		The former Yugoslav Republic of Macedonia		Kazakhstan	
	Czech Republic	Netherlands		Republic of Moldova		Kyrgyzstan	
	Denmark	Poland		Monaco		Morocco	
	Estonia	Portugal		Montenegro		Russian Federation	Submission 30 Nov 😊
	Finland	Romania		Serbia		Tajikistan	
	France	Slovakia		Turkey		Tunisia	
	Germany	Slovenia		Ukraine		Turkmenistan	
	Greece	Spain				Uzbekistan	
	Hungary	Sweden					
	Ireland	United Kingdom	ECAA Member	ICAO EUR/NAT Office	Support requested, Pre-filled template provided	ACE 2016 data available	Template submitted



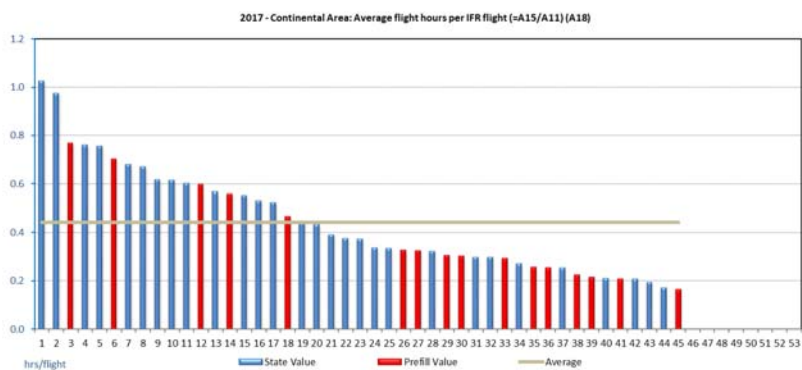
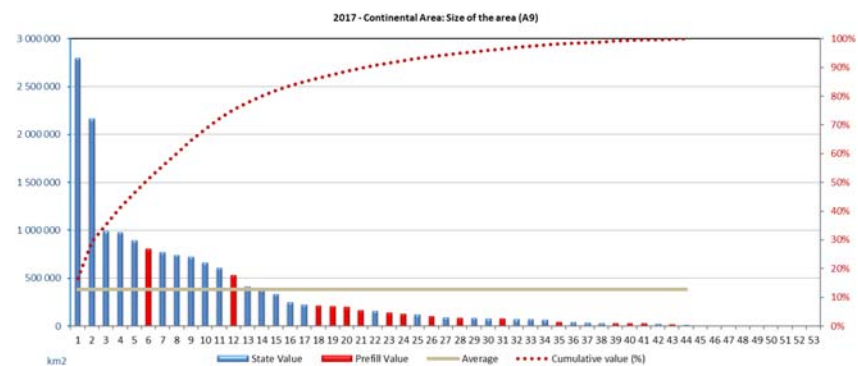
Processing and presentation of results

- Data is collected in one Excel reporting template per State
- Data of individual States is collated into a single data set
 - Basis for graphical representation of results
 - Combination of prefilled and submitted data
 - Blue bars: data as submitted by the State
 - Red bars: prefilled data where available, for States which did not submit a template
 - In some cases the number of States in the graphs is smaller than the number of pre-filled + submitted templates. Reason: for some States the template is only partially filled.
 - Results are anonymised
 - But each State can see where it stands in comparison to all States in the Region
 - Each State knows its own values and can therefore position itself in the graphs



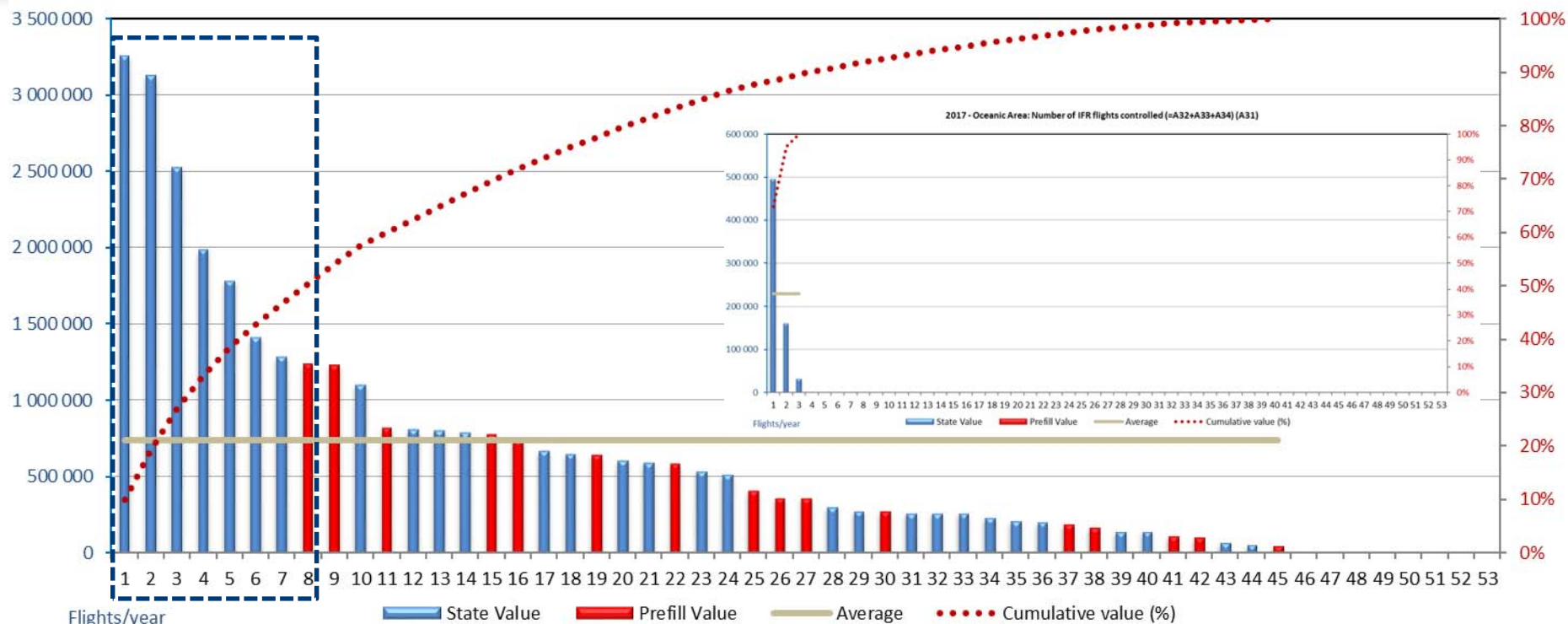
Explanation of graphs

- Title
 - Identifies the data: year, scope (geographical and/or KPA), name of the data item, identifier code in the template
- X-axis
 - The list of anonymised States for the State- and ANSP-based data items (MUAC included as an ANSP), and the list of anonymised airports for the airport-based data items (\pm 180 airports). Note that the labels are ranking numbers, not State/airport identifiers: in principle the mapping between numbers and States/airports is different for each graph.
- Left y-axis
 - The value of the data item, with the measurement units in the bottom left corner (blank means it is simply a count).
- Brown line
 - The average value (arithmetic mean), based on the number of States/ANSPs for which results are available for this data item (the length of the line indicates for how many States/ANSPs data is available). This value is a proxy for the regional average: it will change as data for more States/ANSPs is available.
- A series of blue and/or red bars
 - The profile of individual State/ANSP/airport values in descending order. This provides a good picture of the differences within the region. The bars do not show the difference between a reported value of zero and the value not being reported, but this can be deduced from the brown line (absence of a bar below the brown line means value zero or a value too small to be visible in the graph).
- A red dotted line
 - For data items which are aggregatable over States/ANSPs/airports: the cumulative profile of the blue bars in percent (see right-hand axis).





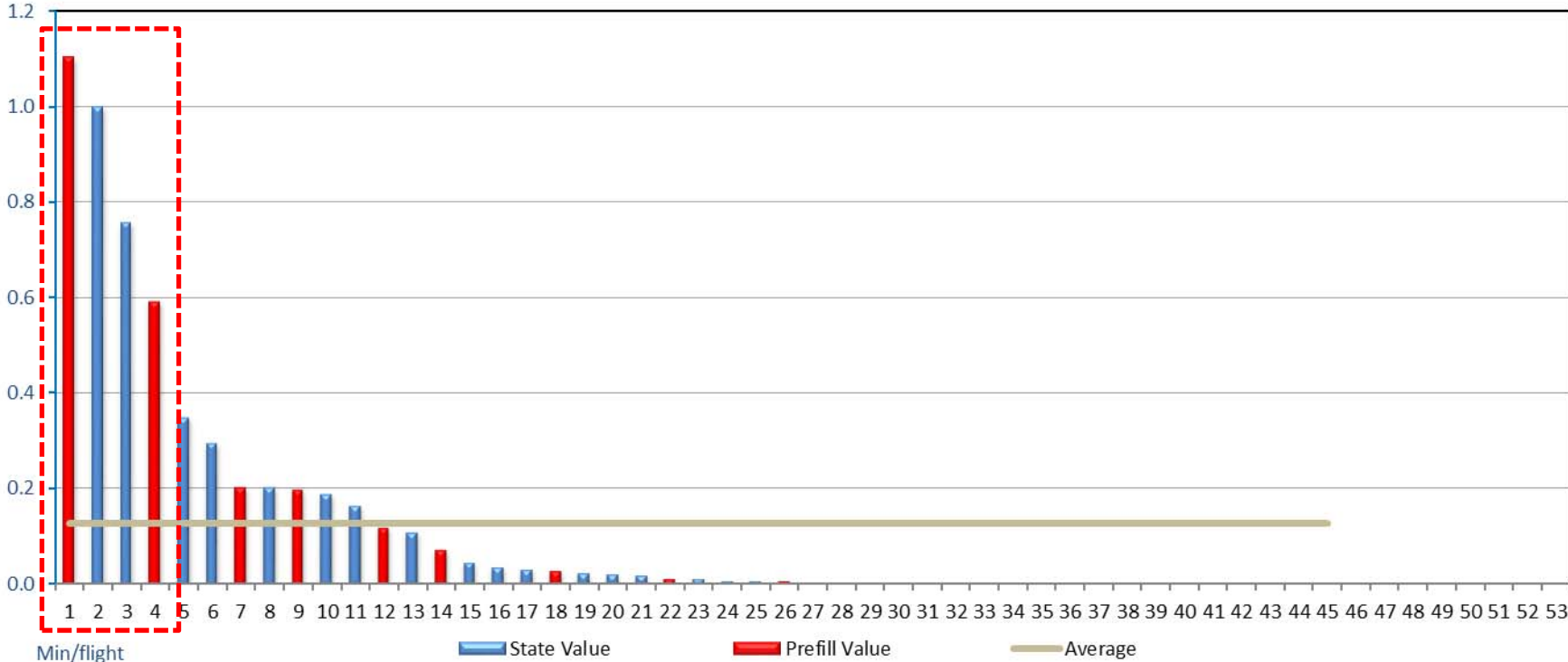
2017 - Continental Area: Total number of IFR flights controlled (=A12+A13+A14) (A11)



Looking at 8 States is sufficient to address 50% of the IFR flight movements.



2017 - Continental Area: Average ATFM delay per flight (=B35/A11) (B36)



Looking at the indicator, improvements should primarily focus on the 4 States with the highest value. However for prioritisation of improvements the total amount of delay (item B35) should be considered as well.



- a) The EUR region is characterised by a wide variety in the size of the airspace as well as of traffic density. The top 6 States included in the report cover 50% of the continental airspace.
- b) The top-5 States account for more than 50% of the flight hours, of the IFR airport movements and of all ATCOs in operations at ACCs.
- c) The average IFR flight duration per State (in continental airspace) varies from 0.17 hrs (10 minutes) to 1.03 hrs (62 minutes).
- d) The vast majority of States have a single FIR. A smaller number has 2 (often a division between upper and lower), while only 6 States have 3 or more FIRs.
- e) The vast majority of States have a single ACC. A smaller number has 2, while only 7 States have 3 or more ACCs. The distribution is similar to the # of FIR distribution.
- f) The data shows that between States there are large differences in Just Culture in the EUR Region and that the RAT methodology is well applied to separation minima infringements (23 States at 100%), runway incursions (21 States at 100%) and ATM-specific technical occurrences (24 States at 100%).
- g) A few States account for more than 50% of all en-route ATFM delay in the EUR Region, main reasons related to demand/capacity mismatch due to ATC capacity problems. The vast majority of States does not generate any significant delay.
- h) 5 airports are causing 50% of all airport ATFM delay in the EUR Region. Weather causes are the biggest contributor; ATC & aerodrome capacity causes together with weather are the biggest contributor to airport ATFM delay.
- i) The top-6 States are accountable for 70% of the EUR Region extra-distance and theoretical CO2 emissions from a lack of horizontal flight efficiency.
- j) The data suggest that there is a variety of results in the ATCO productivity, a dozen of States perform better than the average while a dozen perform below the average.
- k) The participation of States and Stakeholders to the ICAO activities (e.g. workshops, meetings, reports) varies greatly, with an average (based on the examples examined) of 38%.



EUR Doc 030 (2013)

GANP 6th edition KPIs

KPA	OBJECTIVES	FOCUS AREAS	INDICATORS
SAFETY	Ensure safety continuous improvement through reduction of ATM related safety occurrences and implementation of uniform safety standards		Effectiveness of Safety Management (Safety Maturity Questionnaire)
			Level of State Safety/Just culture (Safety Culture Questionnaire)
			Adoption of an harmonized occurrences severity classification methodology
CAPACITY	Capacity meets demand for en-route and at airports	En-route ATFM Delay	Average en-route ATFM delay generated by airspace volume
		Airport ATFM Delay	Average ATFM delay per flight in the main airports (to be identified by States)
EFFICIENCY	Ensure users may use most efficient routes	Horizontal Flight Efficiency	Average horizontal en route flight efficiency (length of the en route part of the actual trajectory/last flight planned route vs great circle)
ENVIRONMENT	Contribute to the protection of environment (fuel/CO2 emissions reduction)		CO2 emissions related to inefficiencies in route extension
COST EFFECTIVENESS	Contribute to optimization of costs for ANS	ATCO Productivity	IFR Flights (en-route) per ATCO hour duty
			IFR flight hours per ATCO hour on duty
			IFR movements per ATCO hour on duty
PARTICIPATION BY ATM COMMUNITY	Ensure States' participation to Regional planning and implementation activities		Level of participation to meetings
			Level of responses to planning activities
			Level of provision of performance results

KPI07

KPI12

KPI05

KPI04

KPI16



Draft for GANP 2019

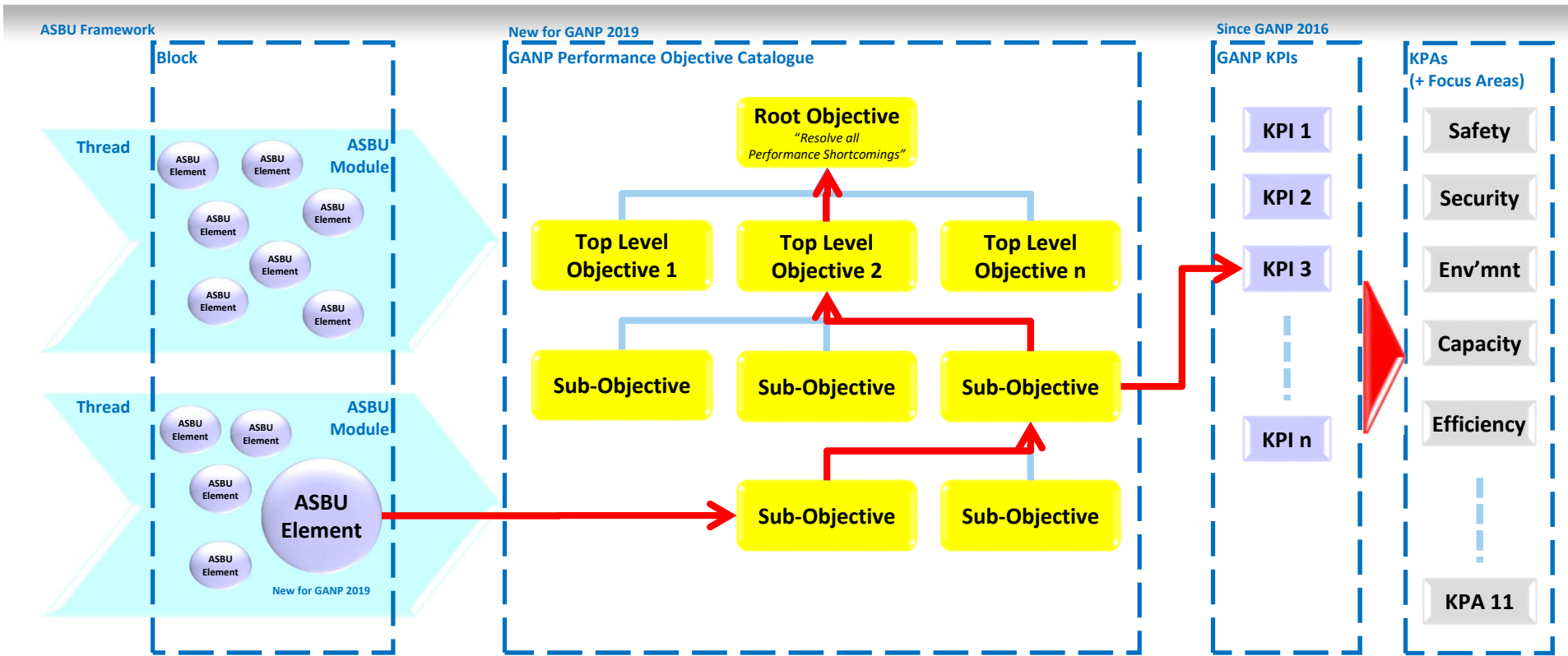
KPA	Efficiency			Capacity		Predictability	
Focus Area(s)	Additional flight time & distance	Vertical flight efficiency	Additional fuel burn	Capacity, throughput & utilization	Capacity shortfall & associated delay	Punctuality	Variability
Core KPIs	KPI02 Taxi-out additional time KPI13 Taxi-in additional time			KPI09 Airport peak capacity KPI10 Airport peak throughput		KPI01 Departure punctuality KPI14 Arrival punctuality	KPI15 Flight time variability
Additional KPIs	KPI04 Filed flight plan en-route extension KPI05 Actual en-route extension KPI08 Additional time in terminal airspace	KPI17 Level-off during climb KPI18 Level capping during cruise KPI19 Level-off during descent	KPI16 Additional fuel burn	KPI06 En-route airspace capacity KPI11 Airport throughput efficiency	KPI07 En-route ATFM delay KPI12 Airport/Terminal ATFM delay	KPI03 ATFM slot adherence	



Flight phase or event	ID	Name
Off-blocks (OUT)	KPI01	Departure punctuality
Taxi-out	KPI02	Taxi-out additional time
Take-off (OFF)	KPI03	ATFM slot adherence
	KPI09	Airport peak capacity (departures)
	KPI10	Airport peak throughput (departures)
Climb	KPI17	Level-off during climb
En-route	KPI04	Filed flight plan en-route extension
	KPI05	Actual en-route extension
	KPI18	Level capping during cruise
	KPI06	En-route airspace capacity
	KPI07	En-route ATFM delay
Descent & terminal area arrival	KPI19	Level-off during descent
	KPI08	Additional time in terminal airspace
Landing (ON)	KPI09	Airport peak capacity (arrivals)
	KPI10	Airport peak throughput (arrivals)
	KPI11	Airport throughput efficiency
	KPI12	Airport/Terminal ATFM delay
Taxi-in	KPI13	Taxi-in additional time
In-blocks (IN)	KPI14	Arrival punctuality
Per flight phase or gate-to-gate	KPI15	Flight time variability
	KPI16	Additional fuel burn



The new GANP





ICAO PARIS UNITING AVIATION



ICAO

North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU