

PRB assessment of RP3 performance plans Annex II - Network performance plan

March 2020

Table of Contents

1	Introduction	3
2	General criteria	4
2.1	Background.....	4
2.2	Overall situation	4
2.3	Observations.....	4
2.4	Stakeholder consultation	4
3	Safety	5
3.1	Requirements of the Network Performance Plan relating to the Safety KPA.....	5
3.2	Target for Effectiveness of Safety Management (EoSM)	5
3.3	Measures planned to reach the target (if applicable)	6
3.4	Measures that the Network Manager puts in place to address ATFM over-deliveries.....	6
3.5	Support to Network Safety.....	6
4	Environment	7
4.1	Requirements of the Network Performance Plan relating to the Environment KPA	7
4.2	Measures to develop and harmonise airspace projects based on network priorities.....	7
4.3	Measures to reducing inefficient use of route network and available airspace.....	7
4.4	Performance targets specific to the European Route Network Design (ERND) function	8
4.4.1	Statutory KPI.....	8
4.4.2	Additional KPI	8
4.5	Measures aimed at achieving the performance targets for the ERND function	9
4.6	Other flight efficiency initiatives specific to the ATFM function.....	9
4.7	Performance targets specific to the coordination of scarce resources function with regards to en route ATFM delay.....	9
5	Capacity	10
5.1	Requirements of the Network Performance Plan relating to the Capacity KPA.....	10
5.2	Performance targets for en route and arrival AFTM delay savings	10
5.2.1	En route ATFM delay savings.....	10
5.2.2	Arrival ATFM delay savings.....	11
5.3	Adequacy of measures aimed at achieving the performance targets for the network functions including the relevance of investments and capital expenditure	11
6	Cost efficiency	13
6.1	Requirements of the Network Performance Plan relating to the Cost efficiency KPA	13
6.2	View of the PRB regarding the Cost efficiency KPA.....	13

1 Introduction

- 1 The European Union established the Network Manager (NM) function under the Single European Sky (SES) II legislative package (Regulation (EU) 677/2011, subsequently amended and repealed by the European Commission Implementing Regulation (EU) 2019/123 with application as from 1 January 2020).
- 2 The aim was to address operational issues and respond to the request of users to have a seamless European airspace – better managed at network level.
- 3 Being a key component of the Single European Sky (SES), the NM also includes a pan-European dimension and delivers services in partnership with a multitude of operational and industrial stakeholders.
- 4 The European Commission has nominated Eurocontrol as the NM to undertake the NM functions. The NM is a specific and essential actor playing a clearly-defined role. In addition to achieving their own performance targets, one of the key objectives of the NM is to support aviation stakeholders to deliver performance to achieve their own local targets for RP3 and to balance performance across States to the overall benefit of the network.
- 5 The activities of the NM have an immediate impact on the operational performance of air traffic management. The NM also calculates the local reference values that cascade the Union-wide targets to a local level to provide the performance required of each Member State to adequately contribute to the Union-wide targets.
- 6 The NM has prepared the Network Performance Plan for Reference Period 3 (RP3) 2020-2024, based on performance and charging scheme Regulation (EU) 2019/317 and the ATM Network Function Regulation (EU) 2019/123 (NF Regulation). The performance and charging scheme Regulation (EU) 2019/317 provides a template for the Network Performance Plan in Annex III. Annex V of the same Regulation then provides the criteria against which the Performance Plan is assessed.

2 General criteria

2.1 Background

- 7 The NM's approved Network Performance Plan (NPP) was received on 30 September 2019 following its endorsement by the Network Management Board.
- 8 Since the network management functions apply to EU Member States, Eurocontrol States and third parties with bilateral agreements with the NM, some of the objectives defined in the NPP are applicable to the pan-European scope, rather than strictly adhering to the SES States.
- 9 In accordance with Article 3 of the performance and charging Regulation (EU) 2019/317, the PRB has assessed this plan on the basis of the criteria laid down in Annex V of the Regulation.

2.2 Overall situation

- 10 During RP2, traffic has recovered significantly from the downturn which followed the financial crisis in 2008-2009. The network accommodated the highest number of flights per year in 2018. Traffic continues to grow and 2019 will eclipse 2018 as the busiest year for aviation in Europe.
- 11 The traffic forecast published by STATFOR in February 2018 projected that growth of (IFR) traffic would slow down to approximately 2%. This is lower than the annual average growth of approximately 3% for RP2.
- 12 Service units continue to grow on average much more quickly than IFR traffic, as airlines use larger, heavier aircraft and fly greater distances. For the RP2 region¹, the February 2019 forecast projected service units to increase by 2.4% per year.

2.3 Observations

- 13 The PRB found no issues regarding missing and/or incomplete elements as mandated by the Performance and charging scheme Regulation (EU) 2019/317.

2.4 Stakeholder consultation

- 14 The draft Network Performance Plan does not explicitly indicate whether stakeholders were consulted in the development of the plan. The PRB recognises that the plan has been endorsed by the Network Management Board and has, therefore, been adequately consulted with stakeholders.

¹ RP2 Region stands for the sum over all the 30 states involved in the Union-wide performance target setting (28 EU Member States plus Norway and Switzerland). RP2 series includes service units for flight segments performed as Operational Air Traffic (OAT) for Germany.

3 Safety

3.1 Requirements of the Network Performance Plan relating to the Safety KPA

- 15 The performance and charging Regulation requires the NM to highlight the following aspects of its work relating to the Safety KPA:
- Annex III – Point 2 (h): the support to Network Safety and the implementation, monitoring and improvement of local safety performance.
 - Annex III – Point 3.1 (a): performance target for the Network Manager on effectiveness of safety management.
 - Annex III – Point 3.1 (b): description of the measures that the Network Manager puts in place to achieve this target.
 - Annex III – Point 3.1 (c): description of the measures that the Network Manager puts in place to address ATFM over-deliveries.

3.2 Target for Effectiveness of Safety Management (EoSM)

- 16 The European Union Aviation Safety Agency (EASA) Notices of Proposed Amendment for the EoSM safety KPIs under RP3 does not provide specific principles for measuring the maturity of the safety management applied by the NM, but assumes the NM will apply the same criteria for maturity levels as air navigation service providers (ANSPs). This may give some issues both for target setting and for monitoring, as there are differences between the two.
- 17 The NM maturity levels of the EoSM during RP3 are defined as a minimum level in each of the Management Objectives for each year as shown in Table 1 including the achieved maturity levels in 2018.

		2018 Levels	2020 Target	2021 Target	2022 Target	2023 Target	2024 Target	RP3 target achieved
Network Manager	Safety policy and objectives	C	B	C	C	C	C	✓
	Safety risk management	D	B	B	B	B	D	✓
	Safety assurance	C	B	B	B	C	C	✓
	Safety promotion	C	C	C	C	C	C	✓
	Safety culture	D	B	B	C	C	C	✓

Table 1 – NM EoSM targets for RP3.

- 18 Targets for the end of RP3 are consistent with the Union-wide targets. Planned maturity levels are defined for all five years in RP3.
- 19 The maturity levels at the beginning of RP3 compared with the maturity levels achieved during RP2 seem to be inconsistent when applying the principle for translation of maturity levels applied during the target setting process. This principle translated a level under the RP2 Accepted Means of Compliance to a level lower using the RP3 Accepted Means of Compliance (i.e. a Level D applying the RP2 AMC would correspond to a Level C applying the RP3 AMC). This indicates that the NM

in 2020 should achieve level C in Safety Risk Management and Safety Culture, and not level B as shown in the NM performance plan.

3.3 Measures planned to reach the target (if applicable)

20 The measures proposed are at two levels:

- generalised measures, covering the overall approach to continuous improvement based on measurements of the effectiveness of the safety management, combined with regulatory oversights by EASA, and
- specific measures, aimed at improvements to the individual Management Objectives as required to reach the targets for RP3.

21 Measures are considered relevant and sufficient to reach the targets if implemented effectively.

3.4 Measures that the Network Manager puts in place to address ATFM over-deliveries

22 The Performance Plan describes initiatives that the NM has introduced to improve the monitoring of over-deliveries (OVDs). The NM has equally defined measures to continue the improvement of the monitoring in order to identify over-deliveries and the associated root causes. Over-deliveries related to issues of predictability and volatility of traffic demand are addressed (e.g. the Flight Plan Predictability project, which aims to improve traffic predictability) through reduction of unanticipated traffic. Initiatives were already implemented during RP2 (e.g. addressing Yo-Yo flights²). Equally, improvements related to Collaborative Decision Making processes will continue during RP3.

23 At the level of the Performance Plan, the measures proposed can be used to address over-deliveries and address the different factors causing over-deliveries, alone or in combination.

3.5 Support to Network Safety

24 Activities are defined for RP3, which should contribute to the implementation, monitoring and improvement of local safety performance.

25 In addition, the Performance Plan describes the principles for managing network safety risk through identifying the top five safety priorities. The approach to monitoring the risk associated with specific incident types (e.g. airspace infringement) is defined, as well as the use of Operational Studies to share lessons learned from incidents and facilitate implementation of the best practices.

At the level of the Performance Plan, activities are found relevant and can contribute to improved Network Safety.

² "A Yo-Yo flight can be defined as following a vertical profile that is planned to (after reaching initial top of climb and before reaching final top of descent during the cruising phase) descend certain amount of Flights Levels (FLs) and then climb certain amount of FLs is Yo-yo flight" NM23.0 OPT INSTRUCTIONS. Eurocontrol

4 Environment

4.1 Requirements of the Network Performance Plan relating to the Environment KPA

26 The Performance and charging Regulation requires the NM to highlight the following aspects of its work relating to the Environment KPA:

- Annex III – Point 2 (b): The development and harmonisation of airspace projects based on network priorities including cross-border airspace design initiatives.
- Annex III – Point 2 (c): Reducing inefficient use of route network and available airspace.
- The European Route Network Design (ERND) function, including:
- Annex III – Point 3.3(a)(i): Performance targets for the key performance indicators for the network function;
- Annex III – Point 3.3(a)(ii): Description and explanation of the measures aimed at achieving the performance targets for the European Route Network Development.

4.2 Measures to develop and harmonise airspace projects based on network priorities

27 The NM's European Route Network Improvement Plan (ERNIP) is the document defining how the development and harmonisation of airspace projects will be achieved. It contains information regarding the Route Network Development function of the NM. During RP2, over 1000 packages of airspace improvements were undertaken and the shortest unconstrained route calculated by the NM path finding algorithms reduced below the set objectives by some margin – a good achievement.

28 The 2019 ERNIP states that RTE-DES³ without an active Route Availability Document (RAD) is expected to decrease to 1.85% by 2024 (0.44% improvement compared to 2018 performance).

29 Since 2012, the NM has targeted an improvement in RTE-DES without an active RAD by 0.57% between 2012 and 2019 (a seven-year period). Therefore, an improvement of 0.44% remains significant and shows that there remains room for improvement. It also shows improvement must be accelerated to achieve this level of performance by 2024.

30 The PRB agrees the NM should focus on FRA implementation. However, even in an FRA environment, a route network will still exist within Member States that do not implement FRA from the ground to upper airspace. The NM should further consider RTE-DES as a metric to continually improve performance.

4.3 Measures to reducing inefficient use of route network and available airspace

31 Whilst the airspace design indicator (RTE-DES) did improve in each year of RP2, the performance in December 2018 was the same as in December 2017 (2.31%), and recent performance shows a reduction in the rate of improvement. This could be expected as the minimum achievable RTE-DES due to local restrictions becomes more of a factor.

32 Nevertheless, whilst the RTE-DES generally improved during RP2, the RTE-FPL and KEA did not and thus the gap between the actual use of the route network and what the airspace design had to offer increased.

33 The NM explains that differences in route charges and low awareness of the optimum route contribute to planned flights that are longer than the RTE-DES would suggest. However, the NM

³ Flight Extension due to Route Network Design.

states that it supports airlines through the Group ReRouting tool (GRRT) and offers rerouting proposals to those airlines that subscribe to the service. To understand whether this service is effective, the PRB would require further information, specifically regarding how many airlines currently use the service, the number of rerouting proposals issued during RP2, and the number of these proposals adopted by airspace users during RP2. Furthermore, the improvement in total distance offered by the rerouting proposals compared with the RTE-FPL would also indicate the effectiveness of the NM's performance in reducing inefficient utilisation of the route network and available airspace.

4.4 Performance targets specific to the European Route Network Design (ERND) function

4.4.1 Statutory KPI

34 During RP3, the performance and charging scheme Regulation requires the NM to specify targets and objectives specific to each network function. For the environment KPA, this centres around the European Route Network Design (ERND) function.

35 Annex I point 3.1 of the Regulation defines the KPI for the NM as:

“The en route flight efficiency improvement generated by the European Route Network Design function related to the last filed flight plan trajectory, expressed as a percentage point of the year-on-year variation of the en route flight efficiency of the last filed flight plan trajectory and calculated in accordance with point 2.2(a) of Section 1”.

36 The NM assumes a direct correlation between the KEA targets set for the SES States and KEP to set a target. The NM considered that the PRB set an improvement of 0.20% for KEA in RP3 relative to the 2019 target, and used the same amount of improvement to determine the KEP improvement relative to the 2019 RP2 KEP target of 4.10%. Thus, a target of 3.90% (4.10% - 0.20%) was calculated. The NM further modulated the target to account for the fact that its scope covers the ICAO EUR region and used the average historic gap of +0.12% between the KEP of the SES States and the wider NM area to find a target of 3.78% (3.90% - 0.12%) for 2024. The NM then further reduced this by 0.05% to adopt a final target of 3.73% for 2024. The rationale behind this final modulation is not clear.

37 Thus, the final year-on-year targets set by the NM as targets are presented in Table 2.

	2020	2021	2022	2023	2024
KEP NM Area (%)	4.37%	4.21%	4.05%	3.89%	3.73%
Year-on-year change	-0.12%	-0.16%	-0.16%	-0.16%	-0.16%

Table 2 – RP3 year-on-year KEP targets.

38 The 2020 target was retrospectively calculated after identifying the 2024 target and the percentage improvements were allocated based on anticipated capacity issues during the first two years and expected traffic growth.

4.4.2 Additional KPI

39 In addition to KEP, the NM identified RTE-DES as an additional performance indicator. The NM plans to further reduce the indicator by 0.34% relative to the 2.29% achieved in 2018, to achieve 1.95% in 2024. The PRB finds the target on this indicator could be more ambitious given that the

2019 ERNIP is designed to improve RTE-DES to 1.85% and therefore, the Performance Plan does not reflect the full ambition of the ERNIP.

4.5 Measures aimed at achieving the performance targets for the ERND function

- 40 Through the NOP and ERNIP, the NM plans to support Member States to achieve their KEA reference values.
- 41 The main measures the NM aims to deploy to achieve the targets are:
- Continuing support to the implementation of FRA including cross-border FRA;
 - Regularly reviewing and simplifying the Route Availability Document;
 - Focussing on specific improvements to affect the most inefficient city-pair routes;
 - Developing the application of Advanced Flexible Use of Airspace;
 - Harmonising Conditional Route (CDR) initiatives;
 - Providing strategic re-routing options to airlines (accounting for commercial aspects);
 - Providing guidance to Computerised Flight Plan Services Providers to support the development of tools to provide the best options for airlines;
 - Relaxing RAD restrictions tactically during less busy hours.
- 42 The PRB finds these measures comprehensive to achieve the target.

4.6 Other flight efficiency initiatives specific to the ATFM function

- 43 A dedicated NM team will support the increased use of Continuous Descent Operations (CDOs) and work directly with stakeholders to implement the required ATM tools for more advanced CDOs. The NM will also monitor the vertical profile of flights with respect to the flight plan to understand its impact on predictability, similar to the role of KEP and KEA for horizontal flights.

4.7 Performance targets specific to the coordination of scarce resources function with regards to en route ATFM delay

- 44 The NM's Radio Frequency Requests (RFF), which contributes to safety and capacity, aims to maintain the current performance by committing to prevent an increase in the number of unsatisfied RFFs and the amount of time taken to satisfy frequency requests.
- 45 The NM does not place a target upon the number of unresolved radio interference reports after six months of the initial report. The PRB believes the NM should work to ensure that no report remains unresolved after six months and encourage the adoption of the objective.

5 Capacity

5.1 Requirements of the Network Performance Plan relating to the Capacity KPA

- 46 The performance and charging Regulation requires the NM to highlight the following aspects of its work relating to the Capacity KPA:
- Annex III – Point 3.3 (b): Performance targets and objectives relating to air traffic flow management
- 47 Annex V requires the PRB to assess the adequacy of the measures aimed at achieving the performance targets for the network functions including the relevance of investments and capital expenditure.

5.2 Performance targets for en route and arrival AFTM delay savings

- 48 The performance and charging Regulation (EU) 2019/317 Annex I section 3 defines the performance targets and objectives specific to each network function. Point 4.1 of the abovementioned section defines the performance indicators for the capacity key performance area, such as:
- The percentage of en route ATFM delay savings from the Cooperative Decision-Making network procedures and NM Operations Centre actions divided by the total year-on-year en route ATFM delay savings (where en route ATFM delay is calculated in accordance with point 3.1 of Section 1).
 - The percentage of arrival ATFM delay savings from the Cooperative Decision-Making (CDM network procedures and NM Operations Centre actions divided by the total arrival ATFM delay savings (where arrival ATFM delay is calculated in accordance with point 3.2(a) of Section 1).

5.2.1 En route ATFM delay savings

- 49 In terms of en route ATFM delay savings, the NM presented historical performance (last four years), whereas the achieved en route delay savings were realised by direct actions from the NM Operations Centre. These savings amount to between 10.2% and 16.5%. The achieved benefits were realised through the NM Operations Centre actions on individual flights and through capacity optimisation process (CDM process with the Flow Management Positions (FMPs) to fine tune capacity according to the latest known demand).
- 50 The NM listed measures and initiatives expected to bring positive benefits and provide additional capacity during RP3, such as: weekend delay reduction, individual flight penalties, increased Air Traffic Flow and Capacity Management, mitigation of weather generated delays, and reduction of first rotation delays.
- 51 The NM presented the RP3 target in terms of the percentage of en route ATFM delay savings from the Cooperative Decision-Making network procedures and NM Operations Centre actions, over the total year-on-year en route ATFM delay savings, as presented in Table 3.

	2020	2021	2022	2023	2024
Percentage of NM en-route ATFM delay savings ⁴	10%	10%	10%	10%	10%

Table 3 – RP3 NM en route AFTM delay savings forecast.

52 The NM noted that the abovementioned benefits cannot be achieved without the strong involvement and commitment of all operational actors through the NM CDM.

5.2.2 Arrival ATFM delay savings

53 In terms of arrival ATFM delay savings, NM presented the historical performance (last four years), whereas achieved arrival delay savings were realised by direct actions from the NM Operations Centre. These savings amount to between 3.9% and 9.7%. The achieved benefits were a result of a direct actions of the NM Operations Centre (i.e. Calculated Time Over, Calculated Take Off Time and Override Slots).

54 The NM listed measures and initiatives expected to bring positive benefits and provide additional capacity during RP3, such as: mitigation of weather related delays and airport area actions, reduction of first rotation delays and improvement of airport slot usage, NM will continue to support the implementation of Airport-CDM and Advanced Towers, integration of airport operations plans/network operations plan, target time of arrival deployment, RECAT-EU and time based separation deployment.

55 The NM presented the RP3 target in terms of the percentage of arrival ATFM delay savings from the Cooperative Decision-Making network procedures and NM Operations Centre actions, over the total arrival ATFM delay savings, as presented in Table 4.

	2020	2021	2022	2023	2024
Percentage of NM airport ATFM delay savings	5%	5%	5%	5%	5%

Table 4 – RP3 NM airport AFTM delay savings forecast.

5.3 Adequacy of measures aimed at achieving the performance targets for the network functions including the relevance of investments and capital expenditure

56 The NM defined a set of measures that would directly enhance the Air Traffic Flow Capacity Management processes, such as:

- Elaboration and harmonisation of network and regional operational concepts (i.e. such as FRA, airport terminal manoeuvring area (TMA) network integration, cooperative traffic management and others). NM defined the next steps envisaged over the next 5-10 years to address the interdependencies between various network and regional operational concepts and to facilitate the introduction of new operational concepts.

⁴ The percentage will be measured as the NM en route delay savings over the total network en route delay

- Airspace management (ASM) and advanced FUA evolution (i.e. improve existing ASM/AT-FCM processes by putting more emphasis on the better utilisation of existing ASM processes, enhancing performance-driven ASM/ATFCM processes and introducing more dynamic and flexible ASM/ATFCM/ATS processes).
- 57 Development of Air Traffic Flow and Capacity Management (ATFCM) processes (i.e. transition towards a flow centric ATFM approach), whereby the flights are considered within a flow and network context rather than as segmented portions of its trajectory.
 - 58 Harmonised capacity planning and measurement of operational performance (i.e. development of the NOP, together with the implementation of CDM processes and improved information management), ensuring better use of the capacity available on the network and improved management of both planned and unplanned events and constraints.
 - 59 Supporting the resolution of air traffic controller shortages across the network (i.e. identification of a number of best practices in the European ATM network on controller and sector mobility), and the Airspace Architecture Study implementation will further support the abovementioned issue through concepts like sector-independent air traffic service and flight/flow centric operations.

6 Cost efficiency

6.1 Requirements of the Network Performance Plan relating to the Cost efficiency KPA

60 The performance and charging Regulation requires the NM to describe the measures that the Network Manager puts in place to improve its cost-efficiency

6.2 View of the PRB regarding the Cost efficiency KPA

61 The Network Performance Plan states that the costs are aligned to the SES performance scheme established for RP3, while presenting a transparent programme and budget to the stakeholders at the Network Manager Board (NMB). The Network Performance Plan justifies the cost evolution. It does not, however, present a detailed quantification of the budget, which means the PRB is unable to assess the overall cost-effectiveness of the NM.