PRB | Performance review body of the single european sky

Indicators for monitoring performance (RP4)

Final report

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1 INTRODUCTION

1 The Commission contracted Steer to complete an independent review of the indicators as defined in in the Commission Implementing Regulation (EU) 2019/317 (hereafter the Regulation) in view of the fourth reference period (RP4). Steer conducted bilateral interviews, collected a questionnaire, and organised a stakeholder workshop to gather views from stakeholders on the topic. This resulted in a report to the Commission which proposes a way forward for indicators within each of the key performance areas (KPAs) of the Regulation.

2 One of the primary tasks of the Performance Review Body (PRB) is to assist the Commission when defining the key performance indicators and indicators for monitoring under Article 3(c) of the Regulation.

3 An initial report was distributed to the participant of the for the technical meeting with the stakeholders which took place on 23rd May. This report is the PRB's final report and includes the updates following the technical meeting. The scope of this report is to suggest monitoring indicators that should be implemented for the fourth reference period of the performance and charging scheme, some of which may be considered as key performance indicators in future reference periods. In its assessment, the PRB has assumed that key performance indicators will remain the same for RP4 as they are in RP3 and are therefore out of scope. As part of this exercise, the PRB has considered the proposals included in Steer's report which represent an analysis of stakeholders' views.

4 The objective of the PRB is to take stock of the experience gained during the current and earlier reference periods in order to refine the existing set of monitoring indicators, and where necessary add complementary indicators to provide greater depth in the assessment of ATM performance for the start of RP4. The main objectives of the indicators suggested are:

- Safety: Include non-prescriptive and flexible monitoring indicators to allow for analysis of local high-risk areas. The proposal broadens the safety monitoring to include interdependencies with other key performance areas, in line with the work in progress for the preparation of RP5.
- Environment: Increase the importance of environment monitoring by covering all the flight phases and including indicators on fuel consumption. The suggested indicators have the advantage of potentially forming the basis for new key performance indicators for RP5; allowing for a more focused assessment of ATM performance.
- Capacity: Complement the key performance indicator on average delays by including monitoring indicators on capacity provision and measures of interdependencies with other key performance areas.
- Cost-efficiency: Include indicators on interdependencies with other key performance areas. and
- Network manager function: Rationalise existing indicators.

5 The PRB considers that the suggested new performance indicators, included in this paper, are important first steps in an evolutionary process. The PRB proposes to carry on this process with further studies focused on developing more refined indicators and key performance indicators that better reflect the impact of actions taken by ANSPs, for inclusion later in RP4 and for consideration as KPIs in RP5.

6 This report is structured as follows:

- Section 2 presents the suggestions related to the indicators for the safety key performance area (KPA);
- Section 3 presents the suggestions related to the indicators for the environment KPA;
- Section 4 presents the suggestions related to the indicators for the capacity KPA;
- Section 5 presents the suggestions related to the indicators for the cost-efficiency KPA;
- Section 6 presents the suggestions related to the network functions indicators; and
- Section 7 presents a summary.

2 SAFETY

2.1 Existing indicators within the Regulation

7 Under Annex I of the Regulation, the following KPI and PIs are used to assess the performance within the safety KPA at Union-wide level:

- Minimum level of the Effectiveness of Safety Management (EoSM) (KPI) (Section 1, 1.1);
- The rate of runway incursions at Union-wide level with a safety impact (Section 1, 1.2(a)); and
- The rate of separation minima infringements at Union-wide level with a safety impact (Section 1, 1.2(b)).

8 For the local level, the following KPI and PIs are used to assess the performance within the safety KPA:

- Minimum level of the Effectiveness of Safety Management (KPI) (Section 2, 1.1);
- The rate of runway incursions at local level (Member State) (Section 2, 1.2(a));
- The rate of separation minima infringements within the airspace of all controlling air traffic services units at local level (Member State) (Section 2, 1.2(b));
- The rate of runway incursions with ATS/CNS contribution at local level (airport) (Section 2, 1.2(c));
- The rate of separation minima infringements with ATS/CNS contribution at local level (ANSP) (Section 2, 2.1(d)); and
- Application by the ANSPs of automated safety data recording systems (Section 2, 2.1(e)).

2.2 Review of Steer proposals for existing indicators

9 Steer proposes retaining all existing safety performance indicators. Table 1 (next pages) summarises the Steer proposals and the PRB suggestions regarding the existing safety indicators.

Minimum level of the effectiveness of Safety Management at Union-wide and local levels (EoSM)

10 The EoSM is the sole KPI for the safety KPA. It is a process indicator which measures the minimum level of maturity achieved within five different safety management objectives:

- Safety policy and objectives;
- Safety risk management;
- Safety assurance;
- Safety promotion; and
- Safety culture.

11 The minimum level of maturity is determined based on the EoSM questionnaire.

12 Steer suggests retaining the EoSM as the sole KPI in line with the recommendation from the EASA S(K)PI drafting group and proposes to revise the EoSM questionnaire in preparation for RP4. Steer notes that the KPI has been used throughout the reference periods and is a well-known indicator for ANSPs, Network Manager, and NSAs. Steer notes that the KPI does not necessarily measure actual safety performance, it measures the level of implementation of the Safety Management System.

13 The PRB highlights that the revised RP4 EoSM is already available and has been consulted with stakeholders in a process managed by EASA.

Rate of runway incursions with a safety impact at Union-wide level

14 This indicator is defined as the total number of runway incursions with a safety impact that occurred at regulated airports in all Member States divided by the total number of IFR and VFR airport movements.[1]

15 Steer suggests retaining this indicator at the Union-wide level for monitoring as an outcome indicator. Steer also suggests a potential refinement by grouping airports with a similar type or level of traffic for the reporting. However, Steer does not develop the proposal in detail and does not specify if the grouping would apply to all indicators measuring rates of runway incursions. Finally, Steer suggests enhancing the data reported to better analyse the implications but does not further develop the proposal.

[1] Occurrences with safety impact should be understood as those occurrences that may represent a risk to aviation. The way to identify these types of occurrences is using the safety risk grade red or amber in the European Risk Classification Scheme (ERCS) matrix when applied to SMIs and RIs, and the ground severity classification A, B, or C after applying the risk analysis tool (RAT) to SMIs and RIs with ATS/CNS contribution.

16 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4. The PRB supports Steer's proposal to group airports, considering that drawing conclusions from comparisons between different reporting organisations can be challenging. This analysis can be done based on the data currently available.

Rate of separation minima infringements at Union-wide level with a safety impact

17 This indicator is defined as the Union-wide total number of separation minima infringements with a safety impact divided by the Union-wide controlled IFR flight hours within the airspace.

18 Steer suggests retaining this indicator at the Union-wide level for monitoring as an outcome indicator. In addition, Steer proposes to enhance the data reported to better analyse the implications but does not further develop the proposal.

19 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4.

Rate of runway incursions at local level (Member State)

20 This indicator is defined as the total number of runway incursions with a safety impact that occurred at regulated airports in a Member State divided by the total number of IFR and VFR airport movements.

21 Steer suggests retaining the indicator at the Member State level for monitoring as an outcome indicator. Similarly for the Union-wide level indicator, Steer also suggests a potential refinement by grouping airports with similar types/levels of traffic for the reporting, and to enhance the data reported to better analyse differences between group of airports. Steer has not developed further the definition of proposed airport groups.

22 The PRB agrees with Steer's proposal and suggests retaining this indicator. PRB supports analysing groups of similar airports (this can be achieved during the monitoring process without further data requests).

Rate of separation minima infringements within the airspace of all controlling air traffic services units at local level (Member State)

23 This indicator is defined as the total number of separation minima infringements with a safety impact that occurred within the airspace of all air traffic service units in a Member State divided by the total number of controlled IFR flight hours within the respective airspace.

24 Steer suggests retaining the indicator at the Member State level as a lagging indicator measuring actual safety performance. As for the Union-wide indicator, Steer proposes to enhance the data reported to better analyse the implications but does not further develop the proposal.

25 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4.

Rate of runway incursions with ATS/CNS contribution at local level (airport)

26 This indicator is defined as the total number of runway incursions with a safety impact that have any contribution from air traffic or CNS services at a specific airport divided by the total number of IFR and VFR movements at that airport.

27 Steer suggests retaining this indicator at the Member State level for monitoring as an outcome indicator. As for the Union-wide indicator, Steer proposes to enhance the data reported to better analyse the implications but does not further develop the proposal.

28 The PRB agrees with Steer's proposal and suggests retaining the indicator for RP4. The PRB supports analysing groups of similar airports (this can be achieved during the monitoring process without further data requests).

Rate of separation minima infringements with ATS/CNS contribution at local level (ANSP)

29 This indicator is defined as the total number of separation minima infringements with a safety impact that have any contribution from air traffic or CNS (communications, navigation and surveillance) services divided by the total number of controlled IFR flight hours within the airspace controlled by the air navigation service provider.

30 Steer suggests retaining this indicator at the local level, monitoring it as an outcome indicator. As for the Union-wide indicator, Steer proposes to enhance the data reported to better analyse the implications but does not further develop the proposal.

31 The PRB agrees with Steer's proposal and suggests retaining the indicator for RP4.

Application by the ANSPs of automated safety data recording systems

32 This indicator defines whether ANSPs use automated safety data recording tools to improve the gathering of occurrence data (SMI and RIs) and the analysis by the organisations' safety management system (SMS).

33 Steer suggests retaining this indicator at the local level, without proposing any further changes.

34 The PRB highlights that the indicator has shown little improvement in the use of such systems over RP2 and RP3 and does not support the performance monitoring as originally intended. Therefore, the PRB (and EASA) suggests removing this indicator.

Indicator	Scope		Steer proposal	PRB suggestion
	Union-wide	Local		
Minimum level of the Effectiveness of Safety Management (EoSM) (KPI)	✓	✓	No change, revise EoSM.	No change, revise EoSM.
The rate of runway incursions at Union-wide level with a safety impact	✓		No change.	No change. Grouping can be done based on already reported data.
The rate of separation minima infringements at Union-wide level with a safety impact	✓		No change.	No change.
The rate of runway incursions at local level (Member State)		✓	No change.	No change. Grouping can be done based on already reported data.
The rate of separation minima infringements within the airspace of all controlling air traffic services units at local level (Member State)		✓	No change.	No change.
The rate of runway incursions with ATS/CNS contribution at local level (airport)		✓	No change.	No change. Grouping can be done based on already reported data.
The rate of separation minima infringements with ATS/CNS contribution at local level (ANSP)		✓	No change.	No change.
Application by the ANSPs of automated safety data recording systems		✓	No change.	Remove. The indicator has little value for safety performance monitoring.

Table 1 - Summary table of the current safety indicators.

2.3 Review of Steer and EASA proposals for new indicators

35 In addition to the existing indicators, Steer proposes two options for new safety performance indicators to be introduced in RP4.

36 The first option is to introduce a selection of prescriptive safety performance indicators:

- Number of overloads reported by controllers (local level);
- ATM-specific occurrences (Union-wide and local levels);
- Airspace infringements (Union-wide and local levels); and
- Loss of minimum safety altitudes (Union-wide and local levels).

37 The second option was based on a proposal by EASA to include a new set of indicators related to the risk picture at Union-wide, Member State, and ANSP levels. Following stakeholders' comments at the technical meeting on 23rd May, EASA revised the proposal by only including indicators related to the risk picture at ANSP levels:

- Locally identified indicators in the ANSP Management System (local level).

38 Table 2 (next pages) summarises the first option proposed by Steer, EASA's revised proposal (replacing Option 2 as set out in the Steer report), and the PRB suggestions regarding the new safety indicators for RP4.

2.4 Option 1 – Prescriptive PIs based on occurrences

Number of overloads reported by controllers

39 Steer suggests introducing the overload occurrences reported by the controllers as a local level indicator. However, Steer does not specify if the indicator should be defined as a number or as a rate, and whether occurrences with a safety impact should only be reported.

40 The indicator identifies situations where the controller judges that they are required to handle more traffic than considered safe. This indicator monitors the ability to safely manage increased complexity, increased re-routings, signs of stress and fatigue, definition of sector capacity and ability to protect controllers through flow measures.

41 In terms of data sources, overload occurrences are reportable events under Implementing Regulation (EU) 2015/1018 Annex III, 2(8) or 3(7). Hence, additional effort in reporting on this indicator should be minimal in terms of collection of existing occurrence reports. The PRB suggests enhancing the data reported for analytic reasons by requesting Member States to provide a list of the occurrences which are the basis for the rate/number calculation (e.g. if one ATS unit is more prone to overload than other ATS units).

ATM-specific occurrences

42 Steer suggests introducing the monitoring of ATM-specific occurrences at Union-wide and local levels. This safety indicator was monitored during RP2. However, Steer does not specify if the indicator should be defined as a number or as a rate, and whether occurrences with a safety impact should only be reported.

43 This indicator monitors the level of degradation or total loss of services or functions (e.g. inability to provide ATM services or to execute ATM functions due to missing, significantly incorrect, corrupted, inadequate, or misleading information from any support service, etc). It would therefore also include aspects such as technical resilience, cyber-attacks, and GNSS jamming affecting navigational aids however, this level of granularity is not provided by the suggested indicator.

44 In terms of data sources, the ATM-specific occurrences are reportable events under Implementing Regulation (EU) 2015/1018 Annex III, 2, and 3 (e.g. points (2) and (3)). Hence, additional effort in reporting on this indicator should be minimal in terms of the collection of existing occurrence reports.

Airspace infringements

45 Steer suggests introducing the monitoring of airspace infringements at Union-wide and local levels. This safety indicator was monitored during RP2. However, Steer does not specify if the indicator should be defined as a number or as a rate, and whether occurrences with a safety impact should only be reported.

46 This indicator identifies aspects such as infringements caused by new, high and low-level airspace entrants and unidentified aircraft (those with their transponder switched off).

47 This indicator monitors airspace infringements, in particular whether the occurrences increase over time for example due to Remotely Piloted Aircraft Systems, increased use of and/or more dynamic reserved airspace principles.

48 In terms of data sources, airspace infringements are reportable events under Implementing Regulation (EU) 2015/1018, Annex III, 1(10b). Hence, additional effort in reporting on this indicator should be minimal to collect existing occurrence reports.

Rate of loss of Minimum Safe Altitudes

49 Steer suggests introducing an indicator covering loss of minimum safe altitudes at Union-wide and local levels. The indicator would cover safety issues related to performance-based navigation (PBN)/required navigation performance (RNP) operations which are increasing in use. Steer reports that the data is already collected, and, while the ANSPs are not fully in control of such occurrences, they are a contributory/related factor.

2.5 Option 2 – EASA revised proposed new indicators

50 In its revised option, EASA argues that adding new prescriptive indicators on occurrences provides limited value to safety performance monitoring and may damage occurrence reporting by incentivising low reporting rates. EASA also notes that prescriptive indicators may divert the attention and resources of ANSPs and NSAs to monitoring and analysing these indicators and not to local high-risk safety issues. Therefore, EASA proposes a shift of paradigm: From a centrally prescribed indicators towards monitoring the indicators that ANSPs have identified as being of highest risk.

51 EASA's revised proposal makes use of the existing authority and organisation requirements to monitor safety. It covers safety performance indicators that are numerically calculated and grouped to produce a qualitative view of the risk picture, which can be compared. Data used to derive the risk picture may change from year to year as risks are mitigated and new risks emerge.

Locally identified indicators in the ANSP Management System (local level)

52 Through this indicator, ANSPs would report on the indicators they are monitoring, and which reflect locally defined high risks. As per Regulation (EU) 2017/373, Annex III, Subpart B (ATM/ANS.OR.B.005), ANSPs are required to describe in their management systems the means to verify the performance of the service provider's organisation considering the performance indicators and performance targets of the management system. Performance indicators are described in the AMC (acceptable means of compliance) and examples further developed in the GM (guidance material). The indicators defined can also include business indicators (e.g. ATCO staffing levels, funding issues) if they influence the risk picture.

53 The monitoring covers indicators of relevance to ANS/ATM performance and the overall business health of the service provider. The full range of indicators that are monitored by the business should be considered, with those exhibiting the highest risk to the provision of service being chosen to form the risk picture. Examples of information that could be provided are:

- The reasons why the indicator was selected for monitoring at ANSP level;
- A visualisation of the development of the indicator over time; and
- An assessment of the significance of the data.

The indicator could be supported by explanations of why the set of locally defined indicators can be used to develop the risk picture, and what developments have been seen compared to the situation at the time the performance plan(s) were adopted. The evolution of the risk picture might then be used to monitor the emergence of new high-risk areas and actions taken to monitor/address new high risks.

54 The value of the indicator is dependent on the maturity of the ANSPs management system (i.e. implementation of regulatory requirement) and represents an opportunity to compare annual risk pictures with those contained in Performance Plans.

2.6 PRB suggestions for new indicators

55 Prescriptive indicators as proposed by Steer provide a clear and well-defined set of monitoring indicators, which relate to aspects which are considered, by some stakeholders, focus areas for RP4. The data is readily available, and the additional effort of involved parties would be limited. However, the indicators have the same drawbacks as the current ones (i.e. not identifying the root causes of degradation of the indicator, changes to

the reporting levels can be driven by variables other than safety performance).

56 The proposal of EASA provides a view on high (safety) risks defined by the organisations. They also would require little additional effort of involved parties since they make use of the regular work of the ANSPs. They would provide a view of the evolution of the risk picture, including emerging high-risk areas. This valuable information can also be compared and contrasted with that provided in the RP4 Performance Plans.

57 Taking into consideration the strengths and weaknesses of the different options, the PRB suggests introducing the indicator proposed by EASA. This would provide a richer picture of safety performance, high-risk areas as identified locally, and the evolution of the risk picture where emerging risks are identified. For monitoring purposes, this is of higher value than the development of a prescriptive set of indicators. The PRB highlights that guidance material is currently being developed by an EASA working group comprised of Member States and Stakeholders.

Indicator	Scope		Steer proposal	PRB suggestion
	Union-wide	Local		
Number of overloads reported by controller		✓	Number of overloads reported by the controller.	Do not introduce. Consider EASA proposal.
ATM-Specific occurrences	✓	✓	Re-introduce indicator with new definition compared to RP2, potential enhancement of reported data.	Do not introduce. Consider EASA proposal.
Airspace infringements at all air traffic services units	✓	✓	Re-introduce indicator with new definition compared to RP2, potential enhancement of reported data.	Do not introduce. Consider EASA proposal.
Rate of loss of Minimum Safe Altitudes	✓	✓	Re-introduce indicator, potential enhancement of reported data.	Do not introduce. Consider EASA proposal.

Indicator	Scope		EASA proposal	PRB suggestion
	Union-wide	Local		
Locally identified indicators in the ANSP Management System		✓	Introduce.	Introduce. EASA to define guidelines on the level of information to be provided.

Table 2 – Summary table of new safety indicators proposed for RP4

3 ENVIRONMENT

3.1 Existing indicators within the Regulation

58 Under Annex I of the Regulation, the following KPI and PIs are used to assess performance within the environment KPA at Union-wide level:

- The average horizontal en route flight efficiency of the actual trajectory (KEA) (KPI) (Section 1, 2.1);
- The average horizontal en route flight efficiency of the last filed flight plan (KEP) (Section 1, 2.2(a));
- The average horizontal en route flight efficiency of the shortest constrained route (SCR) (Section 1, 2.2(b));
- The effective use of reserved or segregated airspace (Section 1, 2.2(c));
- The rate of planning via available airspace structures (Section 1, 2.2(d)); and
- The rate of using via available airspace structures (Section 1, 2.2(e)).

59 For the local level, the following indicators are used to assess performance within the environment KPA:

- The average horizontal en route flight efficiency of the actual trajectory (KPI) (Section 2, 2.1);
- The average horizontal en route flight efficiency of the last filed flight plan trajectory at local level (Member State) (Section 2, 2.2(a));
- The average horizontal en route flight efficiency of the shortest constrained trajectory (Section 2, 2.2(b));
- The additional time in the taxi-out phase (Section 2, 2.2(c));
- The additional time in terminal airspace (Section 2, 2.2(d));
- The share of arrivals applying continuous descent operation (Section 2, 2.2(e));
- The effective use of reserved or segregated local airspace (Section 2, 2.2(f));
- The rate of planning via available local airspace structures (Section 2, 2.2(g)); and
- The rate of using available local airspace structures (Section 2, 2.2(h)).

3.2 Review of Steer proposals for existing indicators

60 Steer provides a review of all existing environmental indicators in their report to the Commission. Steer proposes retaining all the existing environment indicators. Table 3 (next pages) summarises the Steer proposals and the PRB suggestions regarding the existing environment indicators.

Average horizontal en route flight efficiency of the actual trajectory (KEA) at Union-wide and local level (Member State)

61 Environmental performance is measured through one KPI: Horizontal en route flight efficiency of the actual trajectory (KEA). The indicator measures the additional distance flown of the actual trajectory in addition to the great circle distance. The indicator is defined at Union-wide and local level. For the Union-wide level, the additional distance flown is summed over IFR flights within or traversing the European airspace, while for the local level this is summed over IFR flights within or traversing the local airspace.

62 Steer highlights that KEA is not suitable in case of major disturbances (e.g. airspace closure) and is an imperfect proxy that does not capture the impact of the ANSPs' actions. Additionally, the indicator does not account for the impact of weather. Steer highlights that whilst KEA is not an optimal indicator of environmental performance, there is currently no better option and, therefore, Steer suggests retaining the indicator for RP4.

63 Given the importance of the environment KPA, the PRB will continue its work to refine the methodologies for measuring horizontal flight efficiency for inclusion as an indicator later in RP4 and for consideration as a KPI in RP5. The PRB also encourages Member States to set local incentive schemes on other appropriate indicators, as specified in articles 10(3) and 11(4) of the Regulation.

Average horizontal en route flight efficiency of the last filed flight plan trajectory (KEP) at Union-wide and local level (Member State)

64 The average horizontal en route flight efficiency of the last filed plan trajectory (KEP) is defined as the difference between the length of the en route part of the last filed flight plan trajectory and the corresponding portion of the great circle distance.

The indicator is defined at Union-wide and local level. For the Union-wide level, this is defined over IFR flights within or traversing the European airspace, while for the local level over IFR flights within or traversing the local airspace.

65 Steer suggests retaining this indicator for RP4, as it is an explanatory indicator of the constraining factors that limit horizontal flight efficiency. The indicator helps to understand the environmental performance as measured by KEA. KEP measures the efficiency of the routes planned by airspace users according to their own planning tools and criteria.

66 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4.

Average horizontal en route flight efficiency of the shortest constrained trajectory (SCR) at Union-wide and local level (Member State)

67 The average horizontal en route flight efficiency of the shortest constrained trajectory (SCR) is defined as the difference between the length of the en route part of the shortest constrained route available for flight planning measured between the exit and entry points of two terminal manoeuvring areas and the corresponding portion of the great circle distance. The indicator is defined at Union-wide and local levels. For the Union-wide level, it is defined over IFR flights within or traversing the European airspace, while for the local level over IFR flights within or traversing the local airspace.

68 Steer suggests retaining this indicator. In a similar manner to KEP, it serves as an explanatory indicator of KEA. The relevance of SCR lies in its correlation with traffic volumes, available capacity and airspace availability and restrictions in the flight planning stage. This indicator reflects the options airspace users have when planning their flights to minimise delays.

69 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4.

Additional time in taxi-out phase (AXOT) at local level (airport)

70 The additional time in the taxi-out phase (AXOT) is defined as the difference between the actual taxi-out time and the unimpeded taxi-out time at airports with more than 80,000 annual IFR movements and represents the inefficiencies during the taxi-out phase at airports.

71 Steer suggests retaining this indicator for RP4. Steer highlights that unlike en route indicators, AXOT is generally not impacted by the decisions of other ANSPs and other stakeholders. Hence, this indicator offers a good representation of the actions of each ANSP.

72 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4. In addition, the PRB suggests applying the updated methodology of Eurocontrol. The updated methodology relies less on expert judgement, is more easily reproducible, and can be automatically updated on a rolling 12-month basis. The indicator calculated in accordance with the updated methodologies is already available on the ANS Performance platform. Therefore, no additional data collection or calculation are required.[2]

Additional time in terminal airspace (ASMA) at local level (airport)

73 This indicator is defined as the difference between the Arrival Sequencing and Metering Area (ASMA) transit time and the unimpeded time based on ASMA transit times at airports with more than 80,000 annual IFR movements and represents the inefficiencies during the arrival phase at airports. The indicator is defined at local level.

74 Steer suggests retaining this indicator for RP4. As for the AXOT indicator, Steer highlights that, unlike en route indicators, terminal areas are less impacted by the decisions of other ANSPs and other stakeholders. Hence, the ASMA indicator offers a good representation of the actions of each ANSP.

75 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4. In addition, the PRB suggests applying the updated methodology of Eurocontrol. The indicator calculated in accordance with the updated methodologies is already available on the ANS Performance platform. Therefore, no additional data collection or calculation are required.[3]

[2] Details on updated methodologies and the consultation process can be found here.
[3] Details on updated methodologies and the consultation process can be found here.

Share of arrivals applying Continuous Descent Operation (CDO) at local level (airport)

76 This indicator is defined as the ratio between the total number of arrivals performing a CDO from a reference point at a height above ground and the total number of arrival operations. The higher the ratio, the higher the flight efficiency during this phase of flight. The indicator is defined at local level and applies to airports with more than 80,000 annual IFR movements.

77 Steer suggests retaining this indicator for RP4, as it identifies room for improvement at the individual airports.

78 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4.

Effective use of reserved or segregated airspace (ERSA) at Union-wide and local level

79 The indicator is defined as the ratio of the initial requested allocated time for reservation or segregation from general air traffic, and the final allocated time used for the activity requiring such segregation or reservation, as reported to the Network Manager. It measures how well the military or other entity for which an airspace volume has been established are planning and releasing excess airspace. The indicator is defined at Union-wide and local levels.

80 Steer suggests retaining this indicator for RP4. Steer highlights that releasing unneeded airspace on the day could have positive contributions to the performance of the network via airspace users flight planning of available routes.

81 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4. The indicator provides insights into civil-military aspects such as the maturity of the FUA implementation and their impact on environmental performance.

Rate of planning via available airspace structures airspace (RAI) at Union-wide and local level

82 This indicator is defined as the ratio of aircraft filing flight plans via the airspace structures established by the FUA concept, and the number of aircraft that could have planned through those airspace structures. It shows the rate by which airspace users can plan their flights via available airspace structures to fly the shortest route while considering the airspace the military has released. The indicator is defined at Union-wide and local levels.

83 Steer suggests retaining this indicator for RP4. Steer highlights that the application of this indicator is not yet mature given that the data is available for only six Member States.[4]

84 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4. The PRB highlights that the indicator is currently calculated and provided by the Network Manager on a monthly basis.

Rate of using via available airspace structures airspace (RAU) at Union-wide and local level

85 This indicator is defined as the ratio of aircraft flying via the airspace structures established by the FUA concept, and the number of aircraft that could have planned to fly through these airspace structures. It shows the rate by which airspace users use the available airspace structures considering the airspace the military has released. The indicator is defined at Union-wide and local levels.

86 Steer suggests retaining this indicator for RP4. As for RAI, Steer highlights that the application of this indicator is not yet mature due to lack of reporting by Member States.

87 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4. The PRB highlights that the indicator is currently calculated and provided by the Network Manager on a monthly basis.

[4] Steer explains that the lack of reporting could be due to the fact that reporting on this indicator requires a lot of effort from Member States.

Indicator	Scope		Steer proposal	PRB suggestions
	Union-wide	Local		
Average horizontal en route flight efficiency of the actual trajectory (KEA) (KPI)	✓	✓	No change.	No change.
Average horizontal en route flight efficiency of the last filed flight plan trajectory (KEP)	✓	✓	No change.	No change.
Average horizontal en route flight efficiency of the shortest constrained trajectory (SCR)	✓	✓	No change.	No change.
Additional time in terminal airspace (ASMA)		✓	No change.	Retain. Adopt ECTL updated methodology.
Additional time in taxi-out phase (AXOT)		✓	No change.	Retain. Adopt ECTL updated methodology.
Share of arrivals applying Continuous Descent Operation (CDO)		✓	No change.	No change.
Effective use of reserved or segregated airspace (ERSA)	✓	✓	No change.	No change.
Rate of planning via available airspace structures (RAI)	✓	✓	No change.	No change.
Rate of using via available airspace structures (RAU)	✓	✓	No change.	No change.

Table 3 - Summary table of the current environment indicators.

3.3 Review of Steer proposals for new indicators

88 In addition to the existing indicators, Steer proposes new environment performance indicators to be introduced in RP4:

- Horizontal and Vertical TMA; and

89 (Estimated) Gate-to-gate fuel burn/Excess fuel burn.Table 4 (next pages) summarises the Steer proposals and the PRB suggestions regarding the new environment indicators for RP4.

Horizontal and Vertical TMA

90 Steer proposes introducing a new indicator on horizontal and vertical TMA to increase focus on terminal areas (being more directly within the environmental control of ANSPs than en route indicators). This indicator is defined at local level as horizontal and vertical deviations for arrivals from a selected horizon (typically 50NM, up to 200NM) down to final, using two types of reference trajectory (best flown and ideal) to identify airspace and operations related inefficiencies. They measure deviations from reference, "best flown" specific to each airport (operations) and "ideal" common to all airports (airspace). It is a new metric based on Network Manager modelling. Steer highlights that while the indicator is mature, some calibration related to best performer and ideal reference level needs to be done before its introduction. Steer suggests introducing the indicator during the course of RP4 or beyond.

91 The PRB does not suggest including this new indicator for RP4. The PRB accepts that this could be an indicator of aviation's performance but notes that it only focusses on the local aspect of performance, which is already monitored by current indicators Therefore, the PRB suggests maintaining the existing local indicators for RP4 rather than introducing a new horizontal and vertical TMA indicator.

(Estimated) Gate-to-gate fuel burn/Excess fuel burn

92 Steer proposes introducing a gate-to-gate fuel burn indicator. The scope of this indicator is to measure the total fuel burn and CO_2 emissions of all phases of flight, from taxi-out at the departure airport to taxi-in at the arrival airport. The indicator has the benefit of focussing on both en route

Indicator	Scope		Steer proposals	PRB suggestions
	Union-wide	Local		
Horizontal and Vertical TMA		✓	Introduce. Some calibration issues need to be solved meaning an introduction after the start of RP4.	Do not introduce. Maintain existing indicators.
(Estimated) Gate-to-gate fuel burn/Excess fuel burn	✓	✓	Introduce. Whilst not all drivers are under ANSP control, useful to have data. Methodology to be finalised, meaning an introduction after the start of RP4.	Introduce only gate-to-gate CO_2 emissions as it covers a representative sample of flights in SES, covers all phases of flights and can be broken down at local level. Whilst it is not fully under the control of the ANSPs, it is an indicator of aviation's CO_2 performance.
En route vertical flight efficiency	✓	✓	-	Introduce. Complements existing indicators. Indicator already existing and monitored by the Network Manager. PRB to work with NM to consider the proposed refinements.
Continuous climb operation (CCO)		✓	-	Introduce. Complements existing indicators. Indicator already existing and published on the Eurocontrol ANS Performance platform.
Additional taxi-in time (AXIT)		✓	-	Introduce. Complements existing indicators. Indicator already existing and published on the Eurocontrol ANS Performance platform.

and local aspects and is defined at Union-wide level.

93 Steer highlights the benefits of the indicator, which is based on Eurocontrol modelling and does not require actual airspace users' fuel data. Moreover, its reliance on a model makes it is easy to replicate. However, Steer acknowledges that there would be a shared responsibility over this indicator between ANSPs and airspace users as gate-to-gate fuel burn is not fully under ANSP control and it could prove difficult to set a target on fuel burn as the ideal target (or reference) fuel burn level would need to be defined. Steer additionally highlights that the indicator is still under development (e.g. definition of the reference trajectories). Therefore, Steer proposes a delayed introduction of this new indicator during RP4.

94 The PRB considers a comparison to a reference would potentially be more beneficial and suggests introducing, in RP4, the additional gate-to-gate CO_2 emissions indicator developed by Eurocontrol. The additional gate-to-gate CO_2 emissions indicator due to ATM and network constraints is defined, at Union-wide level, as the difference between the total CO_2 emissions of the constrained reference trajectory and the total CO_2 emissions of the theoretical reference trajectory.[5] It is also measured as the additional gate-to-gate CO_2 emissions due to flight planning and execution, and this is calculated as the difference between the total CO_2 emissions of the actual trajectory and the total CO_2 emissions of the constrained reference trajectory. This indicator has the potential to monitor performance at local level as gate-to-gate CO_2 emissions per flight time.

95 On a similar note, the PRB considers excess fuel burn (XFB) to be a promising indicator, although it is likely to be affected by many variables, such as Airspace Users' preferences. Developed by the Network Manager, this indicator calculates the excess fuel burn for an airport pair/aircraft type combination based on the total actual fuel burn/total reference fuel burn.[6] It is currently calculated for flights operated wholly within the Network Management area, and therefore does not consider flights overflying this airspace or entering/exiting this airspace. It does not require actual fuel burn data from airlines as it is based on Network Manager modelling.

96 The PRB acknowledges that gate-to-gate fuel burn and excess fuel burn do not fully reflect the impact of ANSPs; both indicators estimate aviation's fuel burn and CO_2 emission performance across all phases of flight at the Union-wide level. However, the alignment of the performance and charging scheme to the EU's CO_2 reduction goals makes a fuel burn indicator a valuable addition. On this basis, and following the technical meeting with stakeholders on 23rd May 2024, the PRB suggests introducing the gate-to-gate fuel burn indicator for monitoring during RP4. The indicator covers a representative sample of all flights flying within the SES area (including overflights), can be broken down at local level, and measures the gate-to-gate efficiency including the taxi phases. Furthermore, the data used is validated with actual airline data, addressing issues resulting from data estimations.

3.4 PRB suggestions for new indicators

97 In addition to the indicator proposed by Steer, the PRB suggests the introduction of new performance indicators to extend the coverage of the monitoring of air traffic management performance towards a gate-to-gate approach.

98 The PRB proposes to include three further environment indicators:[7]

- En route vertical flight efficiency (Union-wide and local levels);
- Continuous climb operations (Local level); and
- Additional taxi-in time (Local level).

En route vertical flight efficiency

99 At present, vertical flight efficiency is not addressed by the performance scheme. This area of environmental flight efficiency represents 16% of

[5] The constrained reference trajectory represents the CO_2 optimal trajectory taking into account meteorological conditions and ATM and network constraints; while the theoretical reference trajectory represents the CO_2 optimal trajectory taking into account meteorological conditions but no ATM or network constraints. Finally, ATM and network constraints are the impact of the fixed route network, RAD constraints, ATFM regulations, network measures and conditional routes.

[6] A reference fuel burn is calculated for each airport pair/aircraft type combination, which is the fuel burn of the tenth percentile of all flights in the previous two years for each combination.

[7] Further to this work, the PRB is considering how measures of flight efficiency could be further improved.

excess CO_2 emissions and is therefore an important measure of performance.[8]

100 The Network Manager is currently calculating and monitoring an indicator on vertical flight efficiency measured as the percentage of distance flights spent at optimal flight levels (defined as being at or within 1000ft of the planned flight level).[9]

101 The PRB suggests including this indicator at Union-wide and local levels to complement KEA, which only addresses the horizontal efficiency of a flight. However, the PRB suggests refining the indicator to consider:

- The impact of altitude restrictions on vertical flight efficiency; and
- That all flights above their planned flight level should be assumed to be optimal.

102 This indicator, in its current form, is monitored by the Network Manager, and no additional data collection is required. Refinements to the indicator may require additional data and analysis.

Share of departures applying continuous climb operations (CCO)

103 This indicator defines the share of departures applying continuous climb operations. The PRB suggests including this indicator to extend the scope of performance monitoring to more phases of the gate-to-gate flight.

104 The indicator is currently measured and reported on the ANS Performance platform of Eurocontrol. The PRB suggests applying the same methodology.[10]

Additional taxi-in time (AXIT)

105 This indicator defines the average excess time spent during the taxi-in phase, during times that the apron and stands are congested. The PRB suggests including this indicator to extend the scope of performance monitoring to more phases of the flight.

106 The indicator is currently measured and reported on the ANS Performance platform of Eurocontrol.[11] The PRB suggests applying the same methodology.[12]

[8] EASA's European Aviation Environmental Report (2022) (PRB elaboration).
[9] Network Performance Plan 2020-2024, can be found here.
[10] Reported CCO data can be found here.
[11] Reported AXIT data can be found here.
[12] The methodology developed by Eurocontrol can be found here.

Indicator	Scope		Steer proposals	PRB suggestions
	Union-wide	Local		
Horizontal and Vertical TMA		✓	Introduce. Some calibration issues need to be solved meaning an introduction after the start of RP4.	Do not introduce. Maintain existing indicators.
(Estimated) Gate-to-gate fuel burn/Excess fuel burn	✓	✓	Introduce. Whilst not all drivers are under ANSP control, useful to have data. Methodology to be finalised, meaning an introduction after the start of RP4.	Introduce only gate-to-gate CO_2 emissions as it covers a representative sample of flights in SES, covers all phases of flights and can be broken down at local level. Whilst it is not fully under the control of the ANSPs, it is an indicator of aviation's CO_2 performance.
En route vertical flight efficiency	✓	✓	-	Introduce. Complements existing indicators. Indicator already existing and monitored by the Network Manager. PRB to work with NM to consider the proposed refinements.
Continuous climb operation (CCO)		✓	-	Introduce. Complements existing indicators. Indicator already existing and published on the Eurocontrol ANS Performance platform.
Additional taxi-in time (AXIT)		✓	-	Introduce. Complements existing indicators. Indicator already existing and published on the Eurocontrol ANS Performance platform.

Table 4 - Summary table of the new environment indicators proposed for RP4.

4 CAPACITY

4.1 Existing indicators within the Regulation

107 Under Annex I of the Regulation, the following KPI and PIs are used to assess the Union-wide performance within the capacity KPA:

- The average minutes of en route ATFM delay per flight attributable to air navigation services (KPI) (Section 1, 3.1);
- The average time, expressed in minutes, of arrival ATFM delay per flight attributable to terminal and airport air navigation services (Section 1, 3.2(a));
- The percentage of flights with en route ATFM delay greater than 15 minutes (Section 1, 3.2 (b)); and
- The average time, expressed in minutes, of all-cause departure delay per flight (Section 1, 3.2 (c)).

108 For the local level, the following KPI and PIs are used to assess the performance within the capacity KPA:

- The average minutes of en route ATFM delay per flight attributable to air navigation services (KPI) (Section 2, 3.1(a));
- The average time, expressed in minutes, of arrival ATFM delay per flight attributable to terminal and airport air navigation services (KPI) (Section 2, 3.1(b));
- The percentage of flights adhering to their ATFM departure slots at local level (Section 2, 3.2(a));
- The average minutes of air traffic control pre-departure delay per flight caused by take-off restrictions at the departure airport (Section2, 3.2(b)); and
- The average time, expressed in minutes, of departure delay from all causes per flight, calculated at local level (Section2, 3.2(c)).

4.2 Review of Steer proposals for existing indicators

109 Steer reviewed all existing capacity performance indicators. Table 5 (next pages) summarises the Steer proposals and PRB suggestions regarding the existing capacity indicators.

Average minutes of en route ATFM delay per flight attributable to air navigation services at Union-wide and local levels

110 The average minutes of en route ATFM delay is the only capacity KPI at Union-wide level. It is also defined and calculated as a local level KPI.

111 Steer suggests retaining this indicator at Union-wide and local levels since the indicator is well-documented, and the data collection and the calculation is automated and not subject to human interpretation. Steer highlights several shortcomings of this indicator: (i) ATFM delays are attributed only to one single air navigation service provider for each flight, and only to one delay reason; (ii) the indicator fails to differentiate between situations in which an ANSP is not able to deliver more capacity than planned from situations when the ANSP fails to deliver the planned capacity; and (iii) the indicator covers causes which are outside the control of the ANSPs and it cannot easily be translated into passenger experience, given the buffers in the schedules of airlines.

112 The PRB suggests complementing this indicator with a new indicator measuring the distribution of ATFM delays (as defined below in the new indicators for RP4).

Average arrival ATFM delay per flight attributable to airport and terminal air navigation services at Union-wide and local levels

113 This indicator is defined as the average arrival ATFM delay per inbound IFR flight. It is calculated at Union-wide level, and also defined as a KPI at local level.

114 While Steer suggests retaining this indicator as Union-wide and local levels, it highlights the same shortcomings as for the ATFM delay per flight indicator (both indicators cover ATFM delays with the differences being the geographical scope and the service provider behind the delay). Specifically for arrival ATFM delays, Steer highlights that arrival ATFM delays are more useful when measuring performance than departure delays, as they are more closely related to the punctuality of operations experienced by airspace users and passengers.

115 As for the previous indicator, the PRB suggests complementing this indicator with a new indicator

measuring the distribution of ATFM delays (as defined below in the new indicators for RP4).

Percentage of flights with en route ATFM delay greater than 15 minutes at Union-wide level

116 This indicator is calculated as the percentage of fights with ATFM delay greater than 15 minutes and covers all IFR flights and all ATFM delay causes, excluding exceptional events. It is defined at Union-wide level.

117 Steers suggests removing this indicator for RP4. While it measures an important aspect of operational service quality as it indicates the frequency of relatively longer ATFM delays experienced by airspace users, the introduction of a potential new performance indicator on the average en route ATFM delay per delayed flight would make this indicator redundant. On this basis, Steer suggest removing the indicator to alleviate the administrative burden on stakeholders.

118 The PRB agrees with Steer's proposal and suggests removing this indicator for RP4, provided that the indicator on the distribution of ATFM delays is introduced (as defined below in the new indicators for RP4). While the information provided by this indicator is important due to its link with the re-routing of flights, more granular information is required to improve monitoring.

Average time of all-cause departure delay per flight at Union-wide and local levels

119 This indicator is defined as the average delay attributable to airline operation, en route ATFM delay reported by airspace users, reactionary delay, and airport operations delays. It is defined at Union-wide and local levels.

120 Steer suggests retaining this indicator for RP4 and highlights that an indicator on all-cause departure delays provides a proxy of the disturbances to airline schedules. This provides an important view of operational performance. This indicator can also be used to indicate the resilience of the network to day-to-day perturbations.

121 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4.

The percentage of flights adhering to their ATFM departure slots at local level

122 This indicator is defined as the average time, expressed in minutes, of departure delay from all causes per flight. It is defined at local level.

123 Steer suggests retaining this indicator for RP4, highlighting that the Network Manager uses it to assess the predictability of the network.

124 The PRB suggests removing this indicator for RP4. The time window of ATFM slots is 15 minutes (from 5 minutes before to 10 minutes after the assigned calculated take-off time). THE PRB considers this to be too wide, when compared to the average flight time in Europe, to indicate punctuality from an airline perspective.

Average minutes of ATC pre-departure delay per flight caused by take-off restrictions at the departure airport at local level

125 This indicator is defined as the average air traffic control pre-departure delay per outbound IFR flight and includes all IFR flights taking off at the departure airport covering delays in start-up caused by air traffic control constraints when the aircraft is ready to leave the departure stand. It is defined at local level.

126 Steer suggests retaining this indicator for RP4. Steer notes that this indicator focuses on pre-departure delays rather than arrival delays, and as such, may be more detached from the punctuality experienced by the users. At the same time, the indicator helps to understand the operational performance at the airport level and complements the indicator on airport arrival ATFM delays.

127 The PRB agrees with Steer's proposal and suggests retaining the indicator for RP4.

Indicator	Scope		Steer proposal	PRB suggestions
	Union-wide	Local		
The average minutes of en route ATFM delay per flight attributable to air navigation services (KPI)	✓	✓	No change.	No change. Complemented by indicator on the distribution of ATFM delays.
The average time, expressed in minutes, of arrival ATFM delay per flight attributable to terminal and airport air navigation services (KPI)		✓	No change.	No change. Complemented by indicator on the distribution of ATFM delays.
The average time, expressed in minutes, of arrival ATFM delay per flight attributable to terminal and airport air navigation services	✓		No change.	No change. Complemented by indicator on the distribution of ATFM delays.
The percentage of flights with en route ATFM delay greater than 15 minutes	✓		Remove. Redundant with the introduction of indicator on Minutes of ATFM delay per delayed flight.	Remove if an indicator on the distribution of ATFM delays is introduced.
The average time, expressed in minutes, of all-cause departure delay per flight	✓	✓	No change.	No change.
The percentage of flights adhering to their ATFM departure slots at local level		✓	No change.	Remove. The 15-minute width of the slot is too wide to be meaningful for flights with a duration of 60-150 minutes.
The average time, expressed in minutes, of departure delay from all causes per flight		✓	No change.	No change.

Table 5 - Summary table of the current capacity indicators.

4.3 Review of Steer proposals for new indicators

128 In addition to the existing indicators, Steer proposes new capacity performance indicators to be introduced in RP4:

- Minutes of ATFM delay per delayed flight (Union-wide and local levels);
- Weighted ATFM delays (Union-wide and local levels);
- Days where throughput is above expected traffic and where delays per flight are below reference value (Local level); and
- On time in full, OTIF (Union-wide and local levels).

129 Table 6 (next pages) summarises the Steer proposals and the PRB suggestions regarding the new capacity indicators for RP4.

Minutes of ATFM delay per delayed flight

130 Steer suggests introducing the minutes of ATFM delay per delayed flight as a Union-wide and local level indicator.

131 This is a variant of the existing capacity KPI, where the average en route ATFM delay is only calculated for flights which are subject to en route ATFM delay. Steer highlights that this indicator could potentially replace the indicator on the percentage of flights with en route ATFM delays greater than 15 minutes since it provides a more comprehensive picture of en route ATFM delays. Data for this indicator is already available in the existing datasets used for the calculation of ATFM delays.

132 The PRB agrees with Steer's proposal and suggests introducing this new capacity indicator for RP4.

Weighted average ATFM delays per flight

133 Steer suggests introducing another variant of the average ATFM delay indicator, where the average delay per flight is calculated based on a set of preliminarily agreed weights. The weights would put more emphasis on delays occurring during critical operational periods (e.g. during first rotation hours or peak demand periods within the day). This indicator would be calculated on the Union-wide and local level.

134 It would provide additional information on performance aspects that are more important to airspace users and thus could bring value to measuring capacity performance.

135 Steer does not set out how the weights should be calculated and defined, noting that preliminary work on the calibration and the agreement from stakeholders is necessary.

136 In terms of data availability, this indicator would largely use the same datasets as all other indicators on ATFM delays, with the only difference being the weighting system.

137 Whilst the PRB agrees that there could be value in focusing on delays produced at critical times of the days, the PRB suggests that the definition of a suitable weighting system for both Union-wide and local levels would be difficult. Furthermore, indicators focussing on the length of delays and/or on the capacity provided by ANSPs are more important when monitoring performance. On balance, and taking into consideration the administrative burden placed on stakeholders, the PRB does not suggest the inclusion of this new indicator for RP4.

Days where throughput is above expected traffic and where delays per flight are below reference value

138 Steer suggests introducing this indicator to capture the capacity provided by ANSPs and to reconcile this information with traffic demand and ATFM delays. Steer proposes to introduce the indicator at local level.

139 The indicator identifies capacity provision by measuring airspace throughput over a day in terms of IFR movements and comparing it to the forecasted traffic demand. Combining this with the information on when ATFM delays were below the local targets/breakdown values, the indicator would show when ANSPs were able to accommodate unexpected traffic growth without generating excess delays.

140 Steer suggests that if this indicator is not found suitable during the testing period in early RP4, an indicator on "three-hour throughput" or sector-opening hours should be introduced instead. The PRB understands the operational importance of measuring the sustained peak-hour throughput of ACCs, as this indicates an important aspect of the achieved capacity. However, there are limitations in aggregating a throughput indicator, and the absence of a mature methodology to of comparing the monitored figures to an appropriate reference figure. Given these limitations, the PRB suggests

that the concept should be further explored during RP4 and potentially introduced in RP5.

141 The indicator has the benefit of connecting information on traffic demand, airspace throughput, and ATFM delays. It also has a strong connection to the capacity planning collaborative decision making process run by the Network Manager together with the ANSPs. However, the PRB highlights that this indicator cannot be aggregated from the level of ACCs to ANSPs, and beyond (i.e. it is not additive).

142 To facilitate the interpretation of the indicator, the PRB suggests defining the indicator as the percentage of en route ATFM delay minutes that occurred on days when the daily throughput of the ACC was above the daily traffic forecast, compared to the total en route ATFM delay minutes generated over the calendar year. The indicator would then show when ANSPs were unable to manage unforeseen traffic increases and when they were unable to provide sufficient capacity to accommodate expected traffic demand.

143 The PRB also suggests introducing an indicator on the sector-opening hours (as defined in the next sections) to complement the indicator by capturing other aspects of capacity provision.

On time in full (OTIF)

144 Steer suggests introducing this indicator to capture a comprehensive view of operational performance. It consists of two components: The efficiency of the trajectory of the flights, and delays experienced by the flights. Steer proposes to define this indicator at Union-wide and local levels.

145 The indicator is calculated as the percentage of flights able to fly their optimal trajectory without ATFM delays. Steer notes that it is still under development, primarily to define what "optimal" trajectory would mean. Steer suggests that the trajectory included in the flight plan could be used as a starting point until a better definition can be established. Steer proposes introducing the indicator at Union-wide and local levels. Data is available for this indicator, as the information is the same as for all other indicators of ATFM delays and environmental performance.

146 The PRB highlights that this indicator combines environment and capacity performance aspects, capturing interdependencies between the two KPAs. Therefore, the PRB agrees with Steer's proposal and suggests introducing this new indicator for RP4. The PRB suggests using the gate-to-gate excess CO_2 emission indicator as a reference for the efficiency of the flight trajectories. This eliminates the need to define the notion of optimal trajectory linking the indicator with one of the new environment performance indicators suggested.

147 The indicator can be calculated by counting the number of IFR flights within an airspace block which satisfy the two following criteria:

- The flight was not subject to en route ATFM delay; and
- The flight did not generate excess CO_2 emissions while flying in the SES area.

The number of flights meeting both criteria would then be divided by the total number of IFR flights in the airspace block and multiplied by 100 to arrive to a percentage figure.

4.4 PRB suggestions for additional new indicators

148 The PRB suggests the introduction of two additional capacity indicators to enrich the monitoring of capacity performance and to focus on capacity provision:

- Distribution of IFR flights per length of en route and airport arrival ATFM delay (Union-wide and local levels); and
- Sum of sector-opening hours (Union-wide and local levels).

149 These new indicators address the shortcomings of the existing capacity KPIs by providing insights on the operational reality represented by the average ATFM delay per flight.

Distribution of IFR flights per length of en route and airport arrival ATFM delays

150 This indicator identifies the percentage of IFR flights (or IFR arrivals for airport arrival ATFM delays) which were subject to ATFM delays of different lengths. It should be calculated for en route and terminal and based on the following delay categories:

- Zero ATFM delay;
- ATFM delays not greater than 5 minutes;
- ATFM delays greater than 5 but not greater than 15 minutes;

- ATFM delays greater than 15 but not greater than 30 minutes;
- ATFM delays greater than 30 but not greater than 60 minutes; and
- ATFM delays greater than 60 minutes.

The indicator should be defined at Union-wide and local levels, and for en route and arrival ATFM delays. For each category, the percentage value is calculated by counting the number of flights/arrivals subject to the relevant amount of ATFM delay and dividing that figure by the total number of flights that have been subject to ATFM delays (i.e. delayed flights/arrivals).

151 The category with zero ATFM delay includes flights which were not subject to ATFM delays. The second category represents flights which experience some ATFM delays, however, the duration of the delay was rather short, likely without any significant operational impact. The category with ATFM delay between 5 and 15 minutes shows flights which were subject to ATFM delays that may result in schedule disruptions especially if the delays occurred early in the day. The category with ATFM delays between 15 and 30 minutes represents situations where airlines are likely to re-plan their flights and reroute around congested airspace, thus generating environmental impacts. The categories with ATFM delays greater than 30 minutes and 60 minutes represent situations of severe disruptions locally and, in the case of the last category (greater than 60 minutes), most likely on the network level as well.

152 The above categories are used for analysing both en route ATFM delays and airport arrival ATFM delays. IFR arrivals are considered for airport arrival ATFM delays.

153 The PRB suggests introducing the indicator as it would provide a more comprehensive picture of ATFM delays and would replace the existing indicator on the annual percentage of flights with ATFM delays greater than 15 minutes. The PRB currently monitors this distribution for en route ATFM delays as presented in the annual monitoring reports since 2021.

154 Data is available for this indicator, as ATFM delays are already measured for each flight. This means that no additional data collection is required for this indicator.

The sum of sector-opening hours

155 This indicator identifies the capacity that ANSPs are able to provide during a particular period. It complements the information provided by the ATFM delay indicators. The PRB considers that this indicator focuses on the ability of ANSPs to provide capacity, without distortions presented by traffic figures and delays. As sector-opening hours are closely related to the allocation and use of the resources of the ANSPs, this indicator would place a focus on the interdependency between the capacity and cost-efficiency KPAs (more details in the cost-efficiency section).

156 The sum of sector-opening hours is defined as the total opening time of each ATS sector that was activated over a calendar year. For example, the opening time is measured as follow:

- One sector open for one hour is measured as one sector-opening hour;
- Two sectors open for one hour is measured as two sector-opening hours;
- Two sectors open for 30 minutes (i.e. half an hour) equals one sector-opening hour.

The total number of sector-opening hours can be calculated as the product of the number of sectors in each sector configuration and the time during which each configuration was active. Sector-opening hours are additive, therefore values from different ATS units or different periods can be aggregated. This indicator should be defined at both Union-wide and local levels, covering all the ATS sectors which were activated for providing en route ATS services.

157 The PRB suggests that this indicator would provide an initial evaluation of the links between resources used and capacity provided by the ANSPs. The PRB has monitored this indicator, as presented, in its annual monitoring reports since 2021. This indicator is a measure for capacity performance when monitored in conjunction with the other capacity indicators.

158 ANSPs provide data to the Network Manager on sector numbers and sector-opening hours; this indicator can be accurately calculated from that dataset.

Indicator	Scope		Steer proposal	PRB suggestions
	Union-wide	Local		
Minutes of ATFM delay per delayed flight	✓	✓	Introduce. It can be generated by the Network Manager without concerns.	Introduce. Complemented by indicator on delay distribution
Weighted ATFM delays	✓	✓	Introduce. The choice of the weights may need some consideration but could be done for the start of RP4.	Do not introduce. Better to have indicator on delay distribution.
Days where throughput is above expected traffic and where delays per flight are below reference value		✓	Introduce if proven to work. However, it may require some engagement with stakeholders which may mean a delayed introduction of this indicator after the start of RP4. If this indicator is not found to work during RP4, consider introducing "3h throughput" or "number of sector hours provided" as alternatives.	Introduce as the percentage of en route ATFM delay minutes that occurred on days when the daily through-put of the ACC was above the daily traffic forecast, compared to the total en route ATFM delay minutes generated over the calendar year. Complemented by the sum of sector-opening hours provided.
On time in full, OTIF	✓		Introduce. The issue of the definition of the "optimal" trajectory (whether based on flight plan or request on the day) as well as data generation may mean a delayed introduction of this new indicator after the start of RP4	Introduce. Combines environment and capacity performances. Moreover, it links performance with actual service quality levels.
Distribution of IFR flights per length of en route ATFM delay	✓	✓	-	Introduce. Provides a comprehensive view of the operational reality behind average delays per flight. Included in PRB Monitoring Reports since 2021.
Distribution of IFR arrivals per length of airport arrival ATFM delay	✓	✓	-	Introduce. Provides a comprehensive view of the operational reality behind average delays per flight.
Sum of sector-opening hours	✓	✓	-	Introduce. Important to understand performance behind delays. Included in PRB Monitoring Reports since 2021.

Table 6 – Summary table of the new capacity indicators proposed for RP4.

5 COST-EFFICIENCY

5.1 Existing indicators within the Regulation

159 Under the Regulation, the following KPI and PIs are used to assess the performance of the cost-efficiency KPA at Union-wide level:

- The year-on-year change of the Union-wide determined unit cost (DUC) (KPI) (Section 1, 4.1); and
- The actual unit cost incurred by users separately for en route and terminal air navigation services at Union level (Section 1, 4.2).

160 For the local level, the following KPI and PIs are used to assess the performance of the cost-efficiency KPA:

- The DUC for en route and terminal air navigation services (KPI) (Section 2, 4.1(a) and 4.1(b)); and
- The actual unit cost incurred by users separately for en route and terminal air navigation services (Section 2, 4.2)

5.2 Review of Steer proposals for existing indicators

161 Steer provides a review of all the existing cost-efficiency performance indicators, suggesting no changes or modifications. Table 7 (next page) summarises the Steer proposals and the PRB suggestions regarding the existing cost-efficiency indicators.

The year-on-year change of the Union-wide determined unit cost (DUC)

162 This indicator is defined as the percentage year-on-year change of the Union-wide determined unit cost, and it is the only KPI at the Union-wide level. This indicator is defined for en route activities.

163 Steer suggests retaining this indicator as Union-wide level since the indicator is widely accepted by stakeholders and has influenced outturn performance over previous regulatory periods. Steer notes that the main issue of this indicator is that it does not allow for a full understanding of the interrelationship between cost and capacity provided.

164 The PRB suggests accompanying this indicator with more information on the cost for capacity provided (as defined below in the new indicators for RP4).

The actual unit cost incurred by users separately for en route and terminal air navigation services at Union-wide and local levels

165 This indicator is defined as the sum of the determined unit cost and the adjustments stemming from the specific year. It is defined at Union-wide and local levels, and for en route and terminal activities.

166 Steer suggests retaining this indicator, as it provides complementary information to the cost-efficiency KPIs.

167 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4.

The DUC for en route and terminal air navigation services at local level

168 This indicator is defined as the yearly determined unit cost calculated as the ratio between the determined costs and the forecast traffic as defined in the performance plan. It is defined as the local level KPI, for en route and terminal activities.

169 Steer suggests retaining this indicator, highlighting similar shortcomings as of the Union-wide KPI.

170 As for the Union-wide indicator, the PRB suggests accompanying this indicator with more information on the cost for capacity provided (as defined below in the new indicators for RP4).

Indicator	Scope		Steer proposal	PRB suggestions
	Union-wide	Local		
Year-on-Year change of Union-wide DUC (KPI)	✓		No change.	No change. Complemented by indicator on cost of capacity provided.
DUC at charging zone for en route and terminal ANS (KPI)		✓	No change.	No change. Complemented by indicator on cost of capacity provided.
Actual unit cost incurred by users separately for en route and terminal ANS	✓	✓	No change.	No change.

Table 7 – Summary table of the current cost-efficiency indicators.

5.3 Review of Steer proposals for new indicators

171 In addition to the existing indicators, Steer proposes new cost-efficiency performance indicators to be introduced in RP4:

- Total economic cost (Union-wide and local levels).

172 Table 8 summarises the Steer proposals and the PRB suggestions regarding the cost-efficiency indicators for RP4.

Total economic cost

173 This indicator identifies the cost of service provision and the cost of delay generated by ANSPs. Steer suggests that it provides an economic translation of the "true" costs borne by airspace users in relation to the provision of ATM. Steer suggests introducing this indicator while acknowledging that the cost of delay (included in the calculation) is based on a study last updated in 2015. Steer also proposes that, to ensure implementation from the start of RP4, the cost of emissions is not included in the calculation of total economic cost.

174 Whilst the PRB agrees that the indicator brings value by potentially connecting information from three key performance areas, the PRB has some concerns that it would be based on dated cost of delay estimates leading to, potentially, misleading results. The PRB considers that this indicator may usefully be introduced once cost of delay estimates are updated including all relevant items.

5.4 PRB suggestions for additional new indicators

175 The PRB suggests the introduction of one cost-efficiency indicator:

- Cost per unit of capacity (Union-wide and local levels).

Cost per unit of capacity

176 This indicator would identify the relation between costs and provision of capacity and thereby place a focus on the costs that ANSPs face to provide capacity. This would provide some clarity to this aspect of the performance which would evolve over time. As highlighted in the capacity section, this indicator complements the sector-opening hours indicator proposed.

177 The indicator would be calculated as the ratio of en route actual costs and the sum of sector-opening hours provided by the area control centres of each ANSP and defined at Union-wide and local levels. As for the capacity indicator, the PRB acknowledges that this indicator would not be suitable as a standalone measure and should be considered in conjunction with the other capacity indicators.

Indicator	Scope		Steer proposal	PRB suggestions
	Union-wide	Local		
Total economic cost	✓	✓	Introduce. This indicator addresses interdependencies between capacity and cost-efficiency KPAs. Do not include environment KPA as part of total economic cost in this indicator in RP4 as it will not be ready yet.	Do not introduce, until the cost of delay is updated (current study is dated).
Cost per unit of capacity	✓	✓	-	Introduce. Costs per sum of sector-opening hours facilitates an understanding of interdependency between capacity and cost and would complement the cost-efficiency KPI.

Table 8 - Summary table of the new cost-efficiency indicators proposed for RP4.

6 NETWORK MANAGER

6.1 Safety indicators

Existing indicators

178 Under Annex I of the Regulation, the following KPI and PI are used to assess the performance of the safety performance area of the network functions:

- Minimum level of the Effectiveness of Safety Management (EoSM) (KPI) (Section 3, 2.1); and
- Percentage of ATFM over-deliveries (Section 3, 2.2).

Proposals for existing and new indicators

179 For the safety KPA, Steer suggests retaining the current indicators. In addition, Steer suggest updating the EoSM questionnaire for the Network Manager. The PRB agrees with Steer, highlighting that the RP4 EoSM questionnaire for the Network Manager has been developed.

180 EASA proposes a new indicator to complement the ones proposed at Union-wide and local levels. This indicator covers the locally identified indicators in the Network Manager management system having the highest risk at network level.

181 The PRB agrees with EASA and suggests introducing the indicator as this would complement the indicators suggested at the Union-wide, Member State, and ANSP level. The indicator would provide the Network Manager view of the network level risk picture and the evolution of the picture over time. This indicator is consistent with the one defined at the ANSP level.

6.2 Environment indicators

Existing indicators

182 Under Annex I of the Regulation, the following KPI is used to assess the performance of the environment performance area of the network functions:

- The en route flight efficiency improvement generated by the European Route Network Design function related to the last filed plan trajectory (KPI) (Section 3, 3.1).

Proposals for existing and new indicators

183 Steer suggests retaining the current indicator without any change and to not introduce additional indicators.

184 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4. However, the PRB suggests improving the current indicators during RP4 while preparing potential future indicators (e.g. on Airspace and ARES availability).

185 Moreover, the PRB suggests including the route extensions resulting from the actions of the Network Manager Operations Centre (NMOC) to reroute traffic to reduce delay. The effect of these actions demonstrates the interdependency between the capacity and environment KPAs and should be monitored.

6.3 Capacity indicators

Existing indicators

186 Under Annex I of the Regulation, the following KPIs and PIs are used to assess the performance of the network functions in the capacity key performance area:

- Percentage of en route ATFM delay savings from the CDM network procedures and Network Manager Operations Centre actions over the total year-on-year en route ATFM delay savings (KPI) (Section 3, 4.1(a));
- Percentage of arrival ATFM delay savings from the CDM network procedures and Network Manager Operations Centre actions, over the total arrival ATFM delay savings (KPI) (Section 3, 4.1(b));
- Annual percentage of IFR flights with ATFM delay above 15 minutes (Section 3, 4.2(a));
- The average of the daily number of ATFM regulations that each produces less than 200 minutes of delay (Section 3, 4.2(b));
- The average of en route ATFM weekend delay expressed in minutes of delay per flight (Section 3, 4.2(c));
- The annual percentage of first rotation delay due to capacity and staffing for a pre-selection of area control centres/airports with the most significant potential delay reduction as identified annually by the Network Manager (Section 3, 4.2(d));

- The effective use of reserved or segregated airspace (ERSA) (Section 3, 4.2(e));
- The rate of planning via available airspace structures (RAI) (Section 3, 4.2(f)); and
- The rate of using available airspace structures (RAU) (Section 3, 4.2(g)).

Proposals for existing and new indicators

187 As regards the two KPIs on en route and airport arrival ATFM delay savings, Steer highlights that the regulatory definition is difficult to interpret and calculate. Given these issues, the Network Manager uses an alternative interpretation and calculation methodology: Measuring delay savings stemming from CDM network procedures and NM Operations Centre actions against a "do-nothing" scenario.

188 Steer suggests retaining these KPIs while refining their definitions to be aligned with the existing practice.

189 The PRB agrees with Steer's comments, noting the discrepancy between the regulatory definition of the KPIs and the existing calculation methodology. However, the PRB suggests that the indicators are defined in a more transparent way to allow for better performance measurement instead of aligning the regulatory definition with the current practice.

190 The PRB suggests that the capacity KPIs for the network functions are defined as the percentage of total minutes of ATFM delays saved as a result of CDM network procedures and NM Operations Centre actions over the original total minutes of ATFM delays, where the saved delay is calculated as the difference between the original delay an IFR flight would have been subject to without the measures and the actual en route ATFM delay of the flight. This approach should be valid for both en route and airport arrival KPIs.

191 This approach would ensure that the counterfactual for measuring delay savings is well-defined and would reflect the performance of the network manager in mitigating ATFM delays better.

192 Data for using this methodology is available at the Network Manager, given its continuous monitoring of ATFM regulations and ATFM delays.

193 Regarding the performance indicators (PIs):

- Steer suggests retaining the indicator on the percentage of flights with ATFM delays greater than 15 minutes as it provides important insight into the operational reality.
- Steer suggests retaining the indicator on ATFM regulations generating less than 200 minutes, despite the level of the threshold for the indicator being unclear;
- Steer suggests retaining the indicator on the average weekend ATFM delay per flight.
- Steer suggests retaining the indicator on the first rotation capacity and staffing-related ATFM delays. and
- Steer suggests eliminating the duplication of the three airspace-related indicators (i.e. ERSA, RAI, RAU) between the environment KPA and network manager sections.

194 Having considered Steer's proposals, the PRB suggests:

- Removing the indicator on ATFM delays greater than 15 minutes. This information is already monitored at Union-wide level and would still be available as part of the indicator on the distribution of IFR flights based on the experienced length of ATFM delays.
- Removing the indicator on ATFM regulations generating less than 200 minutes of delay, as there are no clear benefits identified from the monitoring of this indicator.
- Retaining the indicator of the weekend ATFM delays if the weighted average ATFM delay indicator as a Union-wide level capacity indicator is not introduced (as suggested by the PRB). However, if the weighted average ATFM delays indicator is introduced at Union-wide level, this indicator might become redundant and should be removed.
- Retaining the indicator on the first rotation delays while extending its scope to cover all-cause first rotation delays and defining the duration of first rotation.
- Eliminating the duplication of the three airspace-related indicators (i.e. ERSA, RAI, RAU) in the network functions, while retaining them within the environment KPA.

195 No additional indicators are proposed by the PRB or Steer.

196 Table 9 (next page) summarises the Steer proposals and the PRB suggestions regarding the capacity indicators for the network functions.

6.4 Cost-efficiency indicators

Existing indicators

197 Under Annex I of the Regulation, the following indicator is used to monitor the performance of the cost-efficiency performance area of the network functions:

- The unit cost for the execution of the tasks of the Network Manager (Section 3, 5.1).

Proposals for existing and new indicators

198 Steer suggests retaining the current indicator without any change.

199 The PRB agrees with Steer's proposal and suggests retaining this indicator for RP4.

200 No additional indicators are proposed by the PRB nor Steer.

Indicator	Steer proposal	PRB proposal
Percentage of ATFM delay savings from the CDM network procedures and NM Operations Centre actions (en route and arrival ATFM delays) (KPIs)	Change definition to the one currently in use.	Change. Definition in the regulation is impossible to apply. Savings to be calculated as the difference between actual ATFM delay and the original delay (i.e. the one the flight would have been subject to based on the network situation).
Percentage of flights with greater than 15 minutes of en route ATFM delay	No change.	Remove, it is already included in capacity KPA.
Average daily number of ATFM regulations producing max 200 minutes of delay	No change.	Remove, no real benefit of monitoring identified.
Average en route ATFM weekend delay per flight	No change.	No change. Remove only If weighted average delay indicator is introduced.
Annual percentage of first rotation delay due to capacity and staffing	No change.	Change to measure all-cause first rotation delays and define first rotation period.
ERSA, RAI, RAU	No change. To consider the duplications.	Remove, duplicate with environment KPA.

Table 9 – Summary table of the capacity indicators of network functions.

7 CONCLUSIONS

201 The following tables summarise the final indicators that the PRB suggests removing, retaining, revising, or introducing in RP4.

Safety

Indicator	Scope		PRB suggestions
	Union-wide	Local	
Minimum level of the Effectiveness of Safety Management (EoSM) (KPI)	✓	✓	No change, revise EoSM.
The rate of runway incursions at Union-wide level with a safety impact	✓		No change. Grouping can be done based on already reported data.
The rate of separation minima infringements at Union-wide level with a safety impact	✓		No change.
The rate of runway incursions at local level (Member State)		✓	No change. Grouping can be done based on already reported data.
The rate of separation minima infringements within the airspace of all controlling air traffic services units at local level (Member State)		✓	No change.
The rate of runway incursions with ATS/CNS contribution at local level (airport)		✓	No change. Grouping can be done based on already reported data.
The rate of separation minima infringements with ATS/CNS contribution at local level (ANSP)		✓	No change.
Application by the ANSPs of automated safety data recording systems		✓	Remove. The indicator has little value for safety performance monitoring.
Locally identified indicators in the ANSP Management System		✓	Introduce. EASA to define guidelines on the level of information to be provided.

Environment

Indicator	Scope		PRB suggestions
	Union-wide	Local	
Average horizontal en route flight efficiency of the actual trajectory (KEA) (KPI)	✓	✓	No change.
Average horizontal en route flight efficiency of the last filed flight plan trajectory (KEP)	✓	✓	No change.
Average horizontal en route flight efficiency of the shortest constrained trajectory (SCR)	✓	✓	No change.
Additional time in terminal airspace (ASMA)		✓	No change. Adopt ECTL updated methodology.
Additional time in taxi-out phase (AXOT)		✓	No change. Adopt ECTL updated methodology.
Share of arrivals applying Continuous Descent Operation (CDO)		✓	No change.
Effective use of reserved or segregated airspace (ERSA)	✓	✓	No change.
Rate of planning via available airspace structures (RAI)	✓	✓	No change.
Rate of using via available airspace structures (RAU)	✓	✓	No change.
(Estimated) Gate-to-gate fuel burn/Excess fuel burn	✓	✓	Introduce the gate-to-gate CO2 emissions as it covers a representative sample of flights in SES, covers all phases of flights and can be broken down at local level. Whilst it is not fully under the control of the ANSPs, it is an indicator of aviation's CO2 performance.
En route vertical flight efficiency	✓	✓	Introduce. Complements existing indicators. Indicator already existing and monitored by the Network Manager. PRB to work with NM to consider the proposed refinements.
Continuous Climb Operation (CCO)		✓	Introduce. Complements existing indicators. Indicator already existing and published on the Eurocontrol ANS Performance platform.
Additional taxi-in time (AXIT)		✓	Introduce. Complements existing indicators. Indicator already existing and published on the Eurocontrol ANS Performance platform.

Capacity

Indicator	Scope		PRB suggestions
	Union-wide	Local	
The average minutes of en route ATFM delay per flight attributable to air navigation services (KPI)	✓	✓	No change. To complement with indicator on the distribution of ATFM delays.
The average time, expressed in minutes, of arrival ATFM delay per flight attributable to terminal and airport air navigation services (KPI)		✓	No change. To complement with indicator on the distribution of ATFM delays.
The average time, expressed in minutes, of arrival ATFM delay per flight attributable to terminal and airport air navigation services	✓		No change. To complement with indicator on the distribution of ATFM delays.
The percentage of flights with en route ATFM delay greater than 15 minutes	✓		Remove only if indicator on the distribution of ATFM delays is introduced.
The average time, expressed in minutes, of all-cause departure delay per flight	✓	✓	No change.
The average time, expressed in minutes, of departure delay from all causes per flight		✓	No change.
The percentage of flights adhering to their ATFM departure slots at local level		✓	Remove. The 15-minute width of the slot is too wide to be meaningful for flights with a duration of 60-150 minutes.
Minutes of ATFM delay per delayed flight	✓	✓	Introduce. To be complemented by indicator on delay distribution
Days where throughput is above expected traffic and where delays per flight are below reference value		✓	Introduce. To be complemented by the number of sector hours provided.
On time in full, OTIF	✓		Introduce. Combines environment and capacity performances. Moreover, it links performance with actual service quality levels.
Distribution of IFR flights per length of en route ATFM delay	✓	✓	Introduce. Provides a comprehensive view on the operational reality behind average delays per flight. Included in PRB Monitoring Reports since 2021.
Distribution of IFR arrivals per length of airport arrival ATFM delay	✓	✓	Introduce. Provides a comprehensive view on the operational reality behind average delays per flight.
Sum of sector-opening hours	✓	✓	Introduce. Important to understand performance behind delays. Included in PRB Monitoring Reports since 2021.

Cost-efficiency

Indicator	Scope		PRB suggestions
	Union-wide	Local	
Year-on-Year change of Union-wide DUC (KPI)	✓		No change. To detail with indicator on cost of capacity provided.
DUC at charging zone for en route and terminal ANS (KPI)		✓	No change. To detail with indicator on cost of capacity provided.
Actual unit cost incurred by users separately for en route and terminal ANS	✓	✓	No change.
Cost per unit of capacity	✓	✓	Introduce. Costs per sum of sector opening hours facilitate the understanding of interdependency between capacity and cost and would complement the cost-efficiency KPI.

Network Manager – Safety

Indicator	PRB suggestions
Minimum level of the Effectiveness of Safety Management (EoSM) (KPI)	No change.
Percentage of ATFM over-deliveries	No change.
Locally identified indicators in the Network Manager management system	Introduce. EASA to define guidelines on the level of information to be provided.

Network Manager - Environment

Indicator	PRB suggestions
The en route flight efficiency improvement generated by the European Route Network Design function related to the last filed plan trajectory (KPI)	No change.
Route extensions resulting from the actions of the Network Manager Operations Centre to reroute traffic to reduce delay	Introduce. It reflects the interdependency between capacity and environment by measuring the impact of delay-saving measures on distance flown.

Network Manager - Capacity

Indicator	PRB suggestions
Percentage of ATFM delay savings from the CDM network procedures and NM Operations Centre actions (en route and arrival ATFM delays) (KPIs)	Change. Definition in the regulation is impossible to apply. Savings to be calculated as the difference between actual ATFM delay and the original delay (i.e. the one the flight would have been subject to based on the network situation).
Percentage of flights with greater than 15 minutes of en route ATFM delay	Remove, it is already included in capacity KPA.
Average daily number of ATFM regulations producing max 200 minutes of delay	Remove, no real benefit of monitoring identified.
Average en route ATFM weekend delay per flight	No change. Remove only if weighted average delay introduced.
Annual percentage of first rotation delay due to capacity and staffing	Change to measure all first rotation delays.
ERSA, RAI, RAU	Remove, duplicate with environment KPA.

Network Manager – Cost-efficiency

Indicator	PRB suggestions
The unit cost for the execution of the tasks of the Network Manager.	No change.