PRB | Performance review body of the single european sky

Performance Review Body Monitoring Report

Germany - 2023

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1 OVERVIEW

1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2023/177 of 14 December 2022

List of ACCs 4
Bremen ACC
Langen ACC
Karlsruhe UAC
Munich ACC

No of airports in the scope of the performance plan:
- **≥80'K** 7
- **<80'K** 8

Exchange rate (1 EUR=)
2017: 1 EUR
2023: 1 EUR

Share of Union-wide:
- **traffic (TSUs) 2023** 11.1%
- **en route costs 2023** 14.0%

Share en route / terminal costs 2023 76% / 24%

En route charging zone(s)
Germany

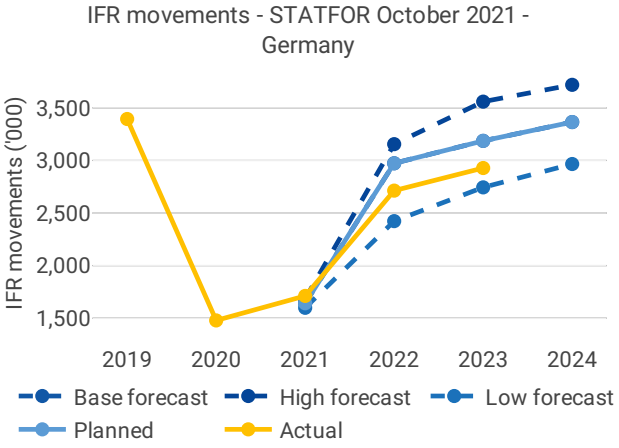
Terminal charging zone(s)
Germany

Main ANSP
- DFS

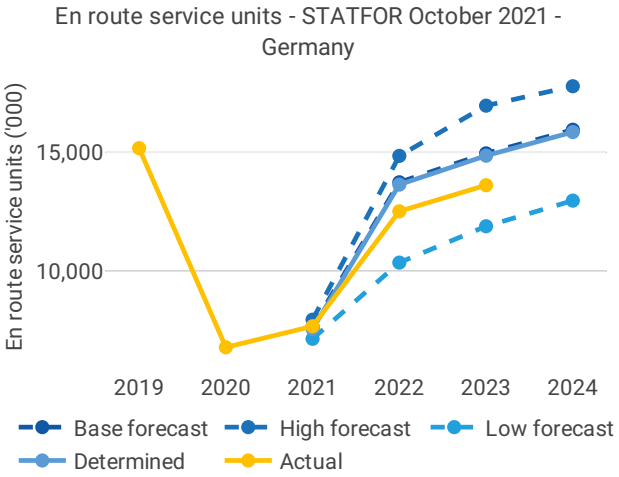
Other ANSPs
- MUAC

MET Providers
- Deutscher Wetterdienst (DWD)

1.2 Traffic (En route traffic zone)

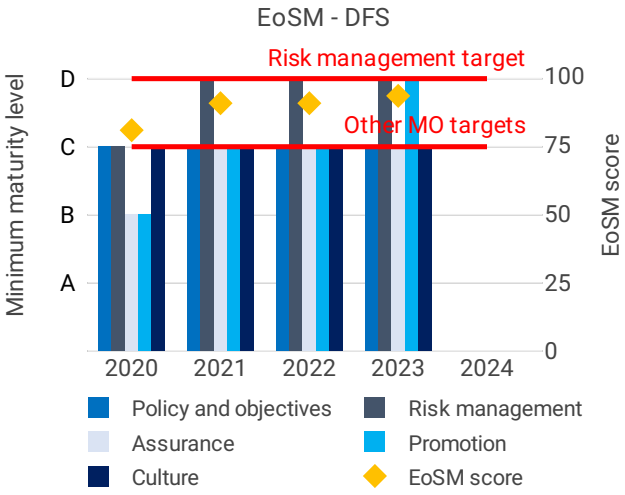


- Germany recorded 2,928K actual IFR movements in 2023, +8% compared to 2022 (2,713K).
- Actual 2023 IFR movements were -8.1% below the plan (3,186K).
- Actual 2023 IFR movements represent 86% of the actual 2019 level (3,394K).



- Germany recorded 13,619K actual en route service units in 2023, +9% compared to 2022 (12,647K).
- Actual 2023 service units were -8.4% below the plan (14,863K).
- Actual 2023 service units represent 90% of the actual 2019 level (15,180K).

1.3 Safety (Main ANSP)



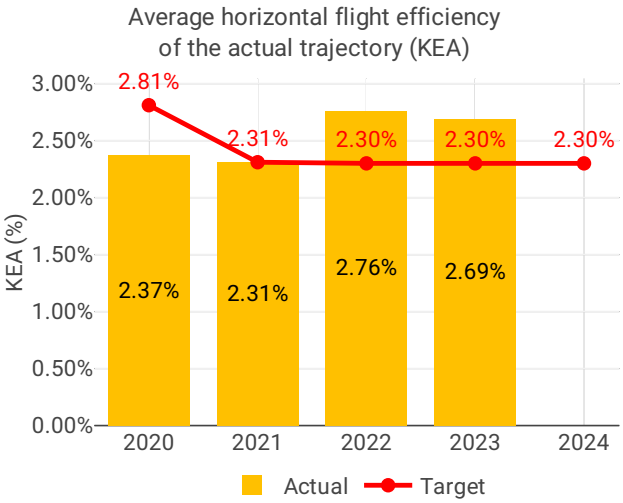
• DFS achieved the RP3 EoSM targets already in 2021 and retained the levels over 2022 and 2023. DFS continued to improve its safety performance and increased the level of safety promotion to level D in 2023.

• Germany reported a decrease in the rate of separation minima infringements and runway incursion in 2023 relative to 2022. Both rates below the Union-wide.

• The German NSA aims to improve the monitoring of safety occurrences. A procedure was implemented that was based on regular reviews and in-depth auditing of specific cases.

• DFS do not use automated safety data recording systems.

1.4 Environment (Member State)



• Germany achieved a KEA performance of 2.69% compared to its target of 2.30% and did not contribute positively towards achieving the Union-wide target.

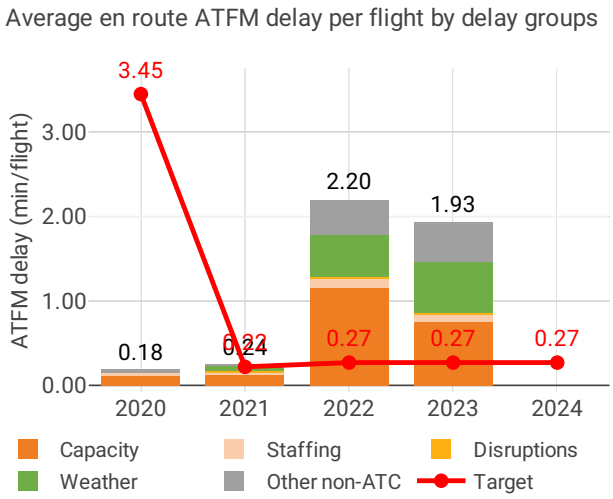
• The NSA states that the effects of increased traffic and establishment of military corridors following Russia's war of aggression against Ukraine are stabilising and flight efficiency is marginally improving.

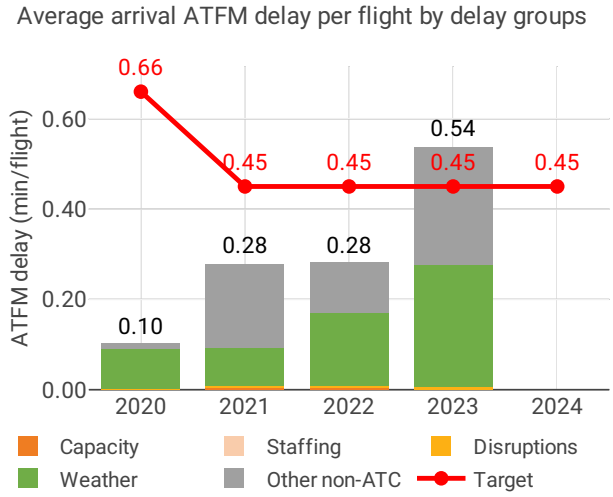
• Both KEP and SCR improved in comparison with 2022. Despite the KEA target being missed, the improvement in SCR shows that Germany has improved the environmental efficiency of its airspace when accounting for impacts outside of its control.

• The share of CDO flights decreased marginally from 13.44% to 12.73% in 2023.

• During 2023, additional time in terminal airspace increased from 1.08 to 1.11 min/flight, while additional taxi out time increased from 1.81 min/flight to 2.28 min/flight.

1.5 Capacity (Member State)





• Germany registered 1.7 minutes of average en route ATFM delay per flight during 2023 which has increased to 1.93 during the post-ops adjustment process, thus not achieving the local target value of 0.27. Delays in Germany decreased by 0.27 minutes per flight year-on-year.

• Delays were highest between May and October, mostly due to ATC system implementation, adverse weather conditions and ATC capacity.

• The share of delayed flights with delays longer than 15 minutes in Germany decreased by 6 p.p. compared to 2022 and was lower than 2019 values.

• The average number of IFR movements was 14% below 2019 levels in Germany in 2023.

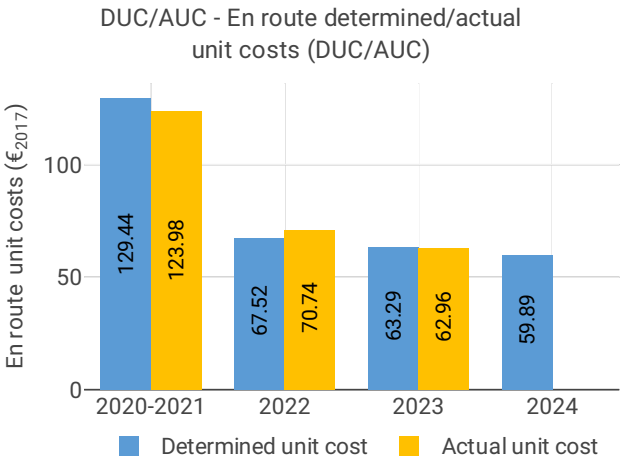
• In Bremen the number of ATCOs in OPS is expected to increase by 7% by 2024, with the actual value being below the 2023 plan by 52 FTEs. In Karlsruhe the number of ATCOs in OPS is expected to increase by 22% by 2024, with the actual value being below the 2023 plan by 59 FTEs. In Langen the number of ATCOs in OPS is expected to stay the same by 2024, with the actual value being below the 2023 plan by 78 FTEs. In Munich the number of ATCOs in OPS is expected to decrease by 1% by 2024, with the actual value being below the 2023 plan by 42 FTEs.

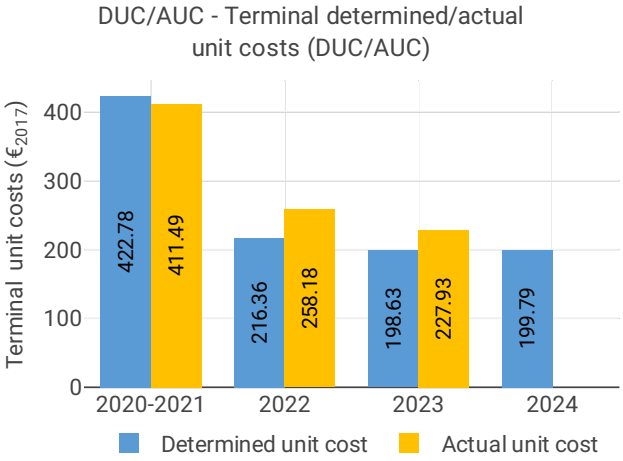
• The yearly total of sector opening hours in Langen ACC was 122,177, showing a no change compared to 2022. Sector opening hours are 7.7% below 2019 levels. The yearly total of sector opening hours in Munich ACC was 103,452, showing a 6.9% increase compared to 2022. Sector opening hours are 6.8% above 2019 levels. The yearly total of sector opening hours in Karlsruhe ACC was 141,432, showing a 2.5% increase compared to 2022. Sector opening hours are 2.3% below 2019 levels. The yearly total of sector opening hours in Bremen ACC was 82,988, showing a 0.8% decrease compared to 2022. Sector opening hours are 20.1% below 2019 levels.

• Langen ACC registered 8.92 IFR movements per one sector opening hour in 2023, being 11.7% below 2019 levels. Munich ACC registered 9.01 IFR movements per one sector opening hour in 2023, being 27.2% below 2019 levels. Karlsruhe ACC registered 12.45 IFR movements per one sector opening hour in 2023, being 1.5% below 2019 levels. Bremen ACC registered 5.67 IFR movements per one sector opening hour in 2023, being 10.4% below 2019 levels.

• Year-on-year traffic growth in Germany was below the Union-wide average at 8%, being, on average, 13% below the STATFOR October 2021 base forecast, with significant differences between ACCs and even between sector groups, adversely affecting already saturated sectors. While there have been improvements in capacity provision at some of the ACCs, the lack of ATCOs and difficulties with ATM system upgrades are still creating a capacity gap which will have to be closed in the coming years.

1.6 Cost-efficiency (En route/Terminal charging zone(s))





• The en route 2023 actual unit cost of Germany was 62.96 €2017, -0.5% lower than the determined unit cost (63.29 €2017). The terminal 2023 actual unit cost was 227.93 €2017, +15% higher than the determined unit cost (198.63 €2017).

• The en route 2023 actual service units (14M) were -8.8% lower than the determined service units (15M).

• In 2023, the en route actual total costs were -83 M€2017 lower (-8.8%) than determined. This substantial reduction was primarily due to the reduction in staff costs (-79 M€2017, or -11%). This reduction was influenced by the impact of the inflation as, in nominal terms, there was a slight increase in actual staff costs of +0.6% when compared to the determined figures. The PRB highlights that the actual number of ATCOs in OPS FTEs for DFS were -16% below plan.

• DFS spent 93 M€2017 in 2023 related to costs of investments for both en route and terminal charging zones, -16% less than determined (111 M€2017). This reduction was a result of a significant underspend in the cost of capital (-59%), which is largely due to lower interest rates, affected by the pension scheme's interest balance and the ANSP's net interest income. Additionally, there is a gap in depreciation costs (-13%), mainly as a result of the decision not to proceed with the implementation of iCAS in Langen.

• The en route actual unit cost incurred by users in 2023 was 78.59€ (+16% above the 2023 DUC), while the terminal actual unit cost incurred by users was 276.30€ (+29% above the 2023 DUC). The difference between the AUCU and the DUC for the en route charging zone is primarily attributed to the inflation adjustment (+114 M€), while for the terminal charging zone, it is mainly due to lower than planned SUs (-18%).

• The PRB will take into consideration the implementation of the RP3 performance plans when assessing the RP4 cost-efficiency targets and urges Germany to take immediate, adequate, and proportionate action to implement the relevant ATCO and investment plans committed to in the RP3 performance plan.

2 SAFETY - GERMANY

2.1 PRB monitoring

• DFS achieved the RP3 EoSM targets already in 2021 and retained the levels over 2022 and 2023. DFS continued to improve its safety performance and increased the level of safety promotion to level D in 2023.

• Germany reported a decrease in the rate of separation minima infringements and runway incursion in 2023 relative to 2022. Both rates below the Union-wide.

• The German NSA aims to improve the monitoring of safety occurrences. A procedure was implemented that was based on regular reviews and in-depth auditing of specific cases.

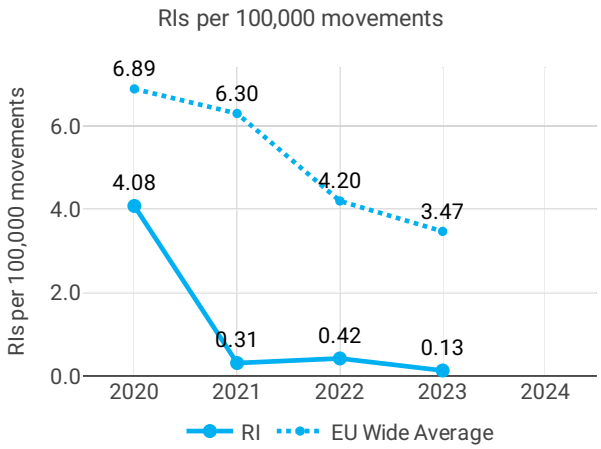
• DFS do not use automated safety data recording systems.

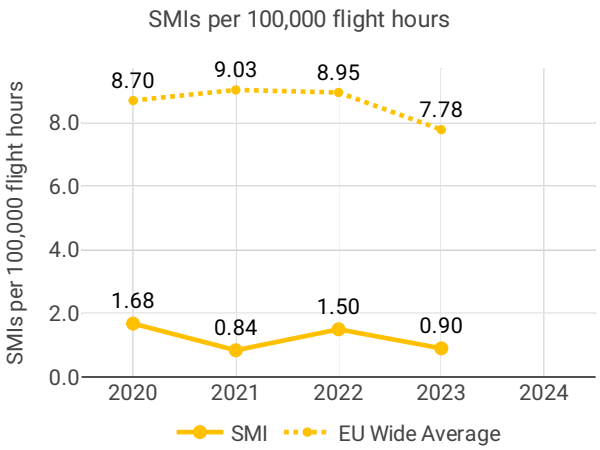
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)

Focus on EoSM

All five EoSM components of the ANSP meet the RP3 target level. The level was improved compared with 2022 for “Safety Promotion”, achieving maximum level D.

2.3 Occurrences - Rate of runway incursions (RIs) (PI#1) & Rate of separation minima infringements (SMIs) (PI#2)





3 ENVIRONMENT - GERMANY

3.1 PRB monitoring

• Germany achieved a KEA performance of 2.69% compared to its target of 2.30% and did not contribute positively towards achieving the Union-wide target.

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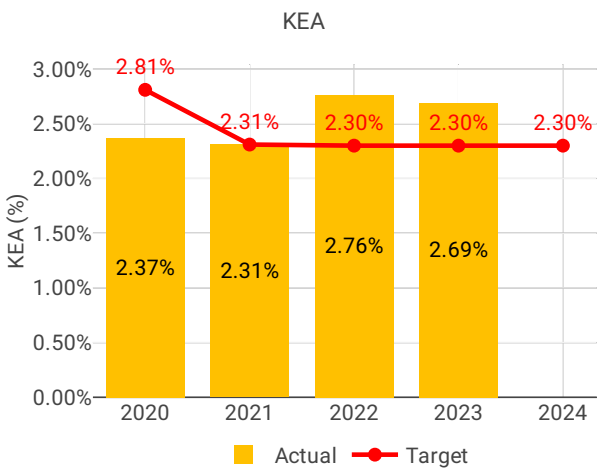
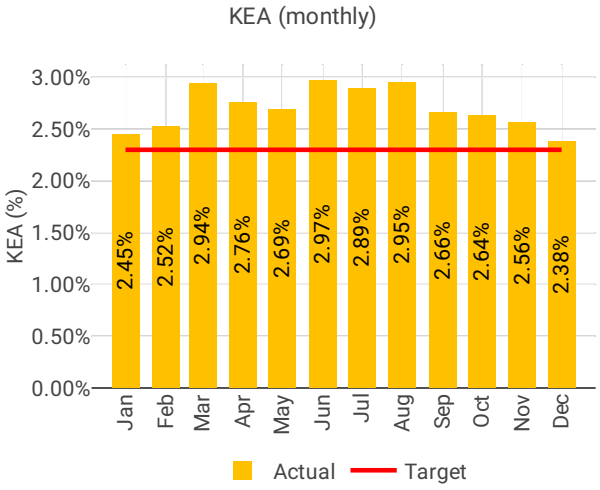
• The share of CDO flights decreased marginally from 13.44% to 12.73% in 2023.

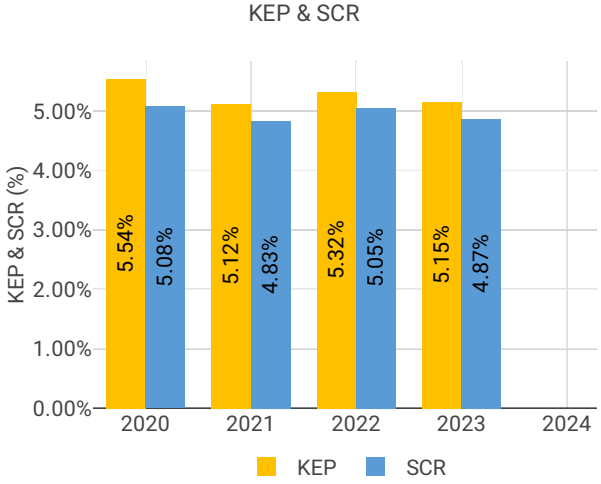
• During 2023, additional time in terminal airspace increased from 1.08 to 1.11 min/flight, while additional taxi out time increased from 1.81 min/flight to 2.28 min/flight.

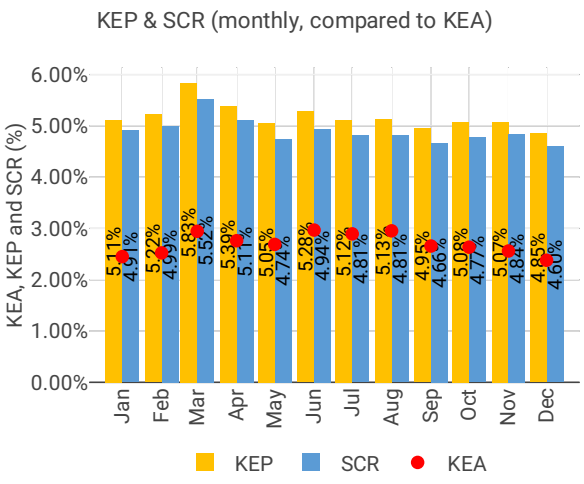
3.2 En route performance

3.2.1 Horizontal flight efficiency of the actual trajectory (KEA) (KPI#1), of the last filed flight plan (KEP) (PI#1) & shortest constrained route (SCR) (PI#2)



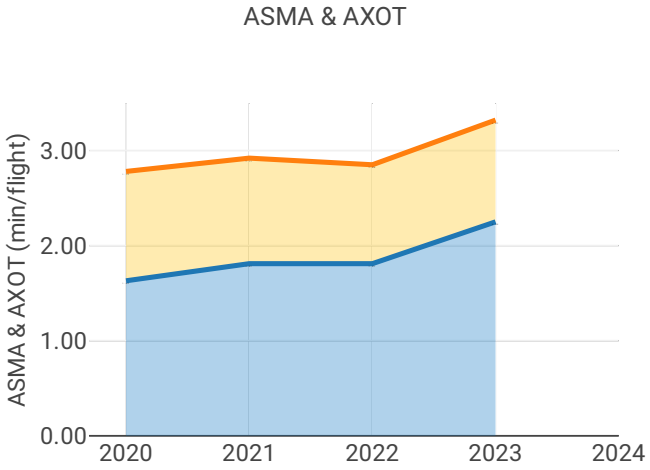


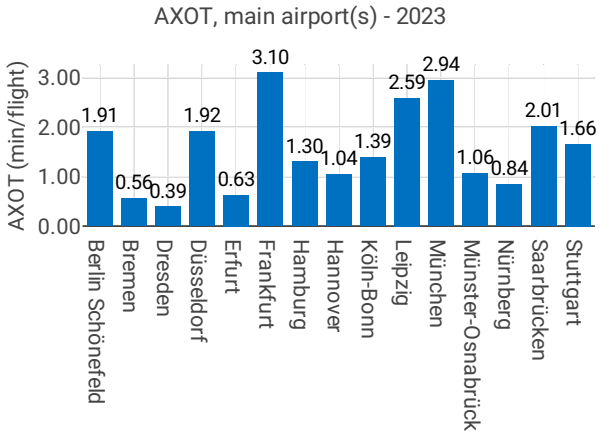


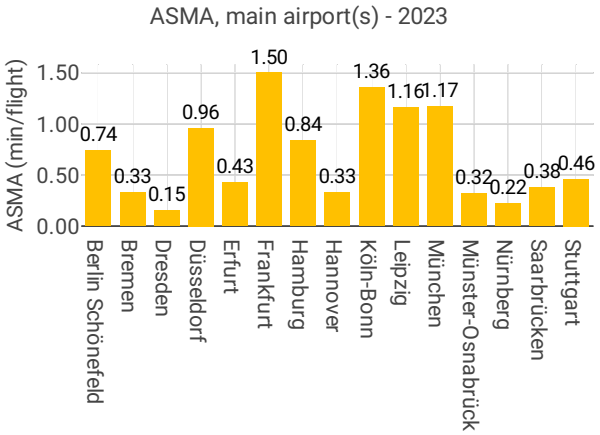


3.3 Terminal performance

3.3.1 Additional taxi-out time (AXOT) (PI#3) & Arrival Sequencing and Metering Area (ASMA) time (PI#4)







Focus on ASMA & AXOT

AXOT

The additional taxi-out times in 2023 at German airports was 21% higher than in 2022. Evolution at each airport is different without any drastic changes, except for Frankfurt, where there was a 71% increase (EDDF; 2019: 3.85 min/dep.; 2020: 1.90 min/dep.; 2021: 1.34 min/dep.; 2022: 1.81 min/dep.; 2023: 3.10 min/dep.) getting closer to 2019 values. Both Frankfurt and Munich exceed the SES average for additional taxi-out time in 2023 of 2.81 min/dep.

According to the German monitoring report: *This data is not collected by DFS. The development of improved Airport-CDM in cooperation with the airports continues.*

The NSA is monitoring the KPA Environment by regularly checking the current performance by using the existing dashboards.

The German monitoring report takes the values from the SES DB: (https://www.eurocontrol.int/prudata/dashboard/vis/2

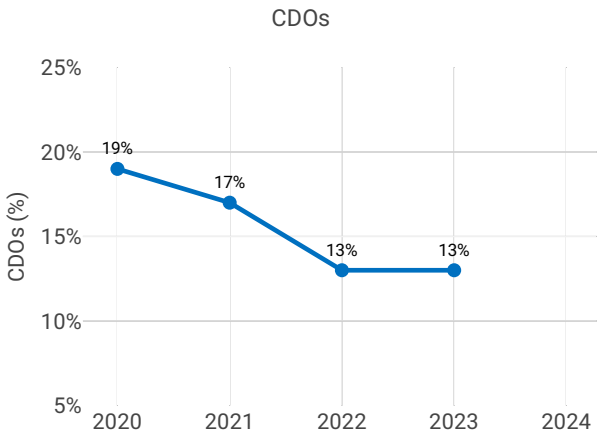
ASMA

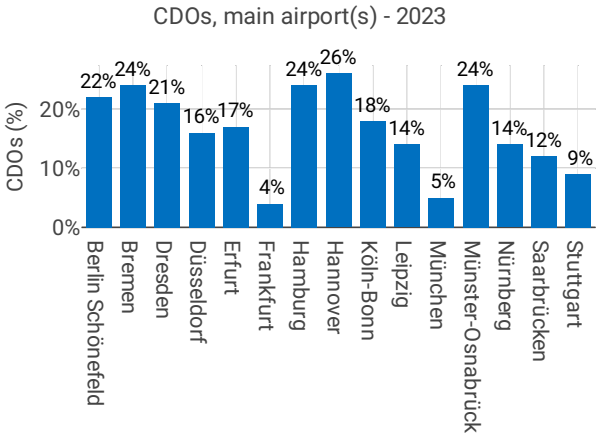
The additional ASMA times in 2023 at German airports was 25% higher than in 2022. Berlin Brandenburg and Munich observed an increase of 25% and 27% respectively. The highest increase was observed at Hamburg (EDDH; 2019: 1,22 min/arr.; 2020: 0,60 min/arr.; 2021: 0,45 min/arr.; 2022: 0,55 min/arr.; 2023: 0.84 min/arr.)

In comparison with the 2023 SES average of 1.16 min/arr.: Franfurt (EDDF; 2019: 2.17 min/arr.; 2020: 1.73 min/arr.; 2021: 1.51 min/arr.; 2022: 1.65 min/arr.; 2023: 1.50 min/arr.), Cologne (EDDK; 2019: 1.15 min/arr.; 2020: 0.88 min/arr.; 2021: 1.27 min/arr.; 2022: 1.3 min/arr.; 2023: 1.36 min/arr.) and Munich (EDDM; 2019: 2,07 min/arr.; 2020: 1,12 min/arr.; 2021: 1,20 min/arr.; 2022: 0,92 min/arr.; 2023: 1.17

min/arr.) exceed that value.
According to German monitoring report: *DFS is constantly optimising its approach system in order to improve capacity (open STARS) and to reduce detours (adjustments in IAPs during PBN transition).*
The NSA is monitoring the KPA Environment by regularly checking the current performance by using the existing dashboards.
Source of above shown values for 2023: SES DB (https://www.eurocontrol.int/prudata/dashboard/vis/2023/)
DFS does not collect the data for the formation of this PI.

3.3.2 Share of arrivals applying continuous descent operations (CDOs) (PI#5)





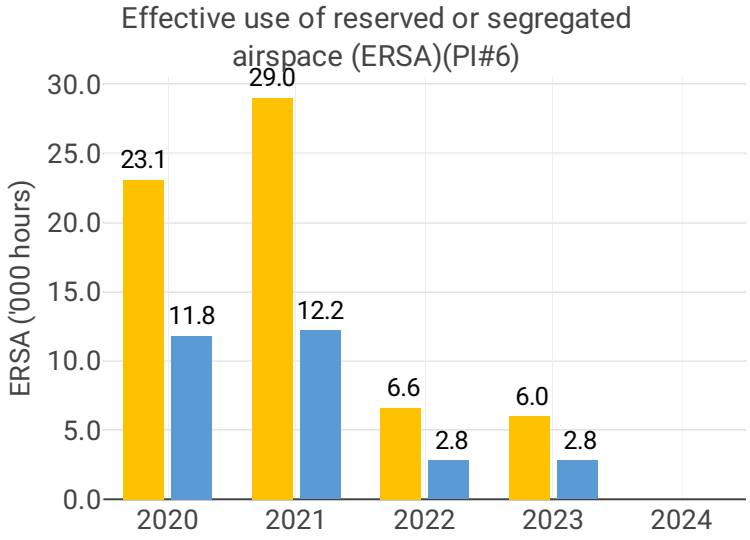
Focus CDOs

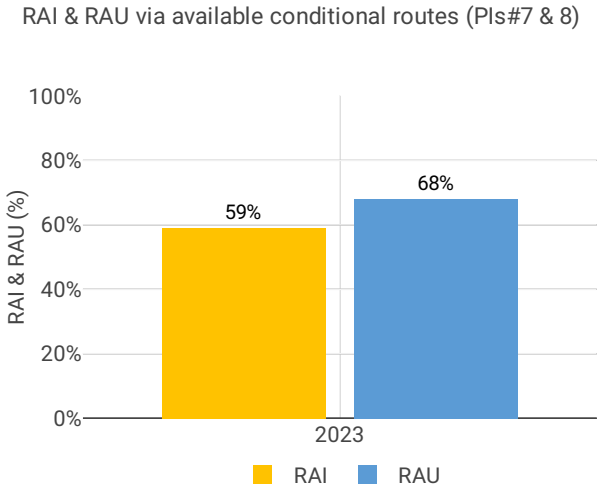
All German airports had shares of CDO flights below the RP3 overall value in 2023 (28.8%). Only Berlin Brandenburg (EDDB), Bremen (EDDW), Erfurt (EDDE), Leipzig (EDDP) and Münster-Osnabrück (EDDG) saw an improvement in the share of CDOs. Overall, the share of CDO decreased from 12.7% in 2022 to 12.0% in 2023.
The two airports with the highest traffic numbers, Frankfurt (EDDF) and Munich (EDDM), still have a very low share of CDO flights.
According to the German monitoring report: *No additional procedures are currently planned or being considered. Continuous Descent Operations (CDO) are applied within the framework of published procedures whenever traffic conditions allow.*
The NSA is monitoring the KPA Environment by regularly checking the current performance by using the existing dashboards.
Source of above shown values is unknown. The SES Dashboard shows the following values for 2023: EDDB 0,19; EDDE 0,15; EDDG 0,21; EDDK 0,19; EDDL 0,18; EDDN 0,13; EDDP 0,13; EDDV 0,25; EDDW 0,21

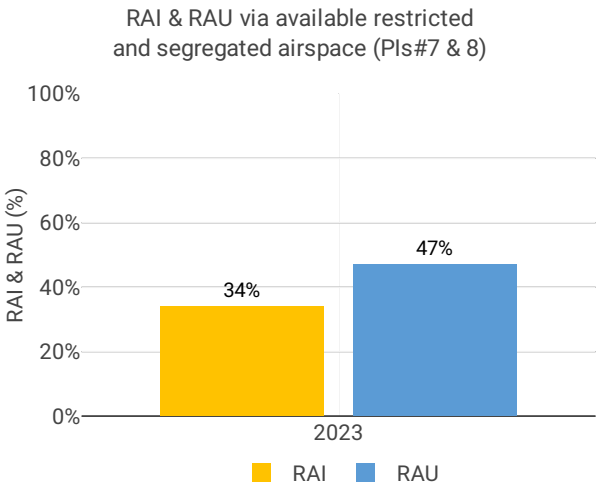
Airport level

	Additional taxi-out time (PI#3)					Additional ASMA time (PI#4)					Share of arrivals applying CDO (PI#5)				
Airport Name	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024
Berlin Schönefeld	1.29	1.90	1.58	1.91	NA	0.40	0.93	0.59	0.74	NA	29%	23%	21%	22%	NA
Berlin-Tegel	0.94	NA	NA	NA	NA	0.72	NA	NA	NA	NA	26%	NA	NA	NA	NA
Bremen	0.60	0.65	0.69	0.56	NA	0.51	0.26	0.29	0.33	NA	25%	16%	23%	24%	NA
Köln-Bonn	1.36	1.34	1.22	1.39	NA	0.88	1.27	1.30	1.36	NA	29%	25%	18%	18%	NA
Dresden	0.46	0.46	0.76	0.39	NA	0.40	0.19	0.15	0.15	NA	24%	22%	21%	21%	NA
Düsseldorf	1.37	1.33	1.63	1.92	NA	1.25	0.59	0.91	0.96	NA	27%	24%	19%	16%	NA
Erfurt	0.41	0.48	0.59	0.63	NA	0.17	0.26	0.69	0.43	NA	20%	22%	14%	17%	NA
Frankfurt	1.90	1.34	1.81	3.10	NA	1.73	1.51	1.65	1.50	NA	8%	7%	5%	4%	NA
Hamburg	0.91	1.12	1.37	1.30	NA	0.60	0.45	0.55	0.84	NA	33%	26%	27%	24%	NA
Hannover	1.03	0.73	1.01	1.04	NA	0.65	0.13	0.24	0.33	NA	33%	32%	27%	26%	NA
Leipzig	2.01	3.68	2.40	2.59	NA	2.07	1.91	1.61	1.16	NA	18%	15%	12%	14%	NA
Münster-Osnabrück	1.02	1.19	1.09	1.06	NA	0.53	0.28	0.39	0.32	NA	17%	19%	23%	24%	NA
München	2.48	3.12	2.70	2.94	NA	1.12	1.20	0.92	1.17	NA	11%	10%	5%	5%	NA
Nürnberg	0.63	0.92	1.35	0.84	NA	0.43	0.32	0.33	0.22	NA	21%	19%	14%	14%	NA
Saarbrücken	2.43	2.72	2.15	2.01	NA	0.61	0.46	0.43	0.38	NA	14%	11%	12%	12%	NA
Stuttgart	1.85	1.87	1.91	1.66	NA	0.56	0.32	0.51	0.46	NA	16%	16%	10%	9%	NA

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

For obvious flight safety reasons, military activities must be segregated from civil flows which has an impact on both horizontal (HFE) and vertical flight efficiency (VFE).
Because ASM manageable areas form an integral part of the nominal system, military airspace reservations shall be considered as part of the performance baseline rather than a key factor degrading environmental KPIs.
As a result of implementation of the FUA concept the impact of military activities using Restricted Airspace (RSA) on civil performance is highly minored when associated with an efficient ASM process:
- At strategic level (HLAPB) by designing areas in accordance with A-FUA concept (MVPA/VGA structures), especially for congested airspaces.
- At pre-tactical level (AMC), by managing these areas in a dynamic way, with an associated level 2 CDM process, validated by HLAPB.
- At tactical level (ACC/Regional Military Control Centre) by activating/deactivating areas as close as possible to actual use and allowing crossing or direct routes when possible (in accordance with TRA status), with an associated level 3 CDM process validated by HLAPB.
- At each level, HLAPB, AMC or ACC/Regional Military Control Centre, a key factor of efficiency is a trust-driven civil-military cooperation. As a counterpart, AOs and CFSPs must be reactive and take efficiently into account available or released airspaces. At last, ANSP have also to adapt the route network to create more DCTs within military areas.
Finally, local circumstances (e.g. constrained airspace, proximity of international hubs, etc….) as well as

a large number of military missions that differ from one State to another must be taken into account. Therefore, airspace needs (e.g. airspace requirements for the 5th generation fighters) and related ASM procedures of the States differ and standardized objectives cannot be defined.

Military - related measures implemented or planned to improve capacity

FABEC States are working on mid-term improvements regarding implementation of ASM level 1. 2. and 3 procedures. Some local initiatives regarding ASM/ATFCM convergence, like the traffic Light Scheme concept in France are promoted at FABEC level, as well as at ECAC level in the EUROCONTROL OEP framework. Another major improvement is the interconnection of the existing ASM tools (e.g. LARA, STANLY_ACOS) at FABEC Level, to enhance regional coordination among FABEC AMCs as well as with the NM.

Initiatives implemented or planned to improve PI#6

No data available.

Initiatives implemented or planned to improve PI#7

No data available.

Initiatives implemented or planned to improve PI#8

No data available.

4 CAPACITY - GERMANY

4.1 PRB monitoring

• Germany registered 1.7 minutes of average en route ATFM delay per flight during 2023 which has increased to 1.93 during the post-ops adjustment process, thus not achieving the local target value of 0.27. Delays in Germany decreased by 0.27 minutes per flight year-on-year.

• Delays were highest between May and October, mostly due to ATC system implementation, adverse weather conditions and ATC capacity.

• The share of delayed flights with delays longer than 15 minutes in Germany decreased by 6 p.p. compared to 2022 and was lower than 2019 values.

• The average number of IFR movements was 14% below 2019 levels in Germany in 2023.

• In Bremen the number of ATCOs in OPS is expected to increase by 7% by 2024, with the actual value being below the 2023 plan by 52 FTEs. In Karlsruhe the number of ATCOs in OPS is expected to increase by 22% by 2024, with the actual value being below the 2023 plan by 59 FTEs. In Langen the number of ATCOs in OPS is expected to stay the same by 2024, with the actual value being below the 2023 plan by 78 FTEs. In Munich the number of ATCOs in OPS is expected to decrease by 1% by 2024, with the actual value being below the 2023 plan by 42 FTEs.

• The yearly total of sector opening hours in Langen ACC was 122,177, showing a no change compared to 2022. Sector opening hours are 7.7% below 2019 levels. The yearly total of sector opening hours in Munich ACC was 103,452, showing a 6.9% increase compared to 2022. Sector opening hours are 6.8% above 2019 levels. The yearly total of sector opening hours in Karlsruhe ACC was 141,432, showing a 2.5% increase compared to 2022. Sector opening hours are 2.3% below 2019 levels. The yearly total of sector opening hours in Bremen ACC was 82,988, showing a 0.8% decrease compared to 2022. Sector opening hours are 20.1% below 2019 levels.

• Langen ACC registered 8.92 IFR movements per one sector opening hour in 2023, being 11.7% below 2019 levels. Munich ACC registered 9.01 IFR movements per one sector opening hour in 2023, being 27.2% below 2019 levels. Karlsruhe ACC registered 12.45 IFR movements per one sector opening hour in 2023, being 1.5% below 2019 levels. Bremen ACC registered 5.67 IFR movements per one sector opening hour in 2023, being 10.4% below 2019 levels.

• Year-on-year traffic growth in Germany was below the Union-wide average at 8%, being, on average, 13% below the STATFOR October 2021 base forecast, with significant differences between ACCs and even between sector groups, adversely affecting already saturated sectors. While there have been improvements in capacity provision at some of the ACCs, the lack of ATCOs and difficulties with ATM system upgrades are still creating a capacity gap which will have to be closed in the coming years.

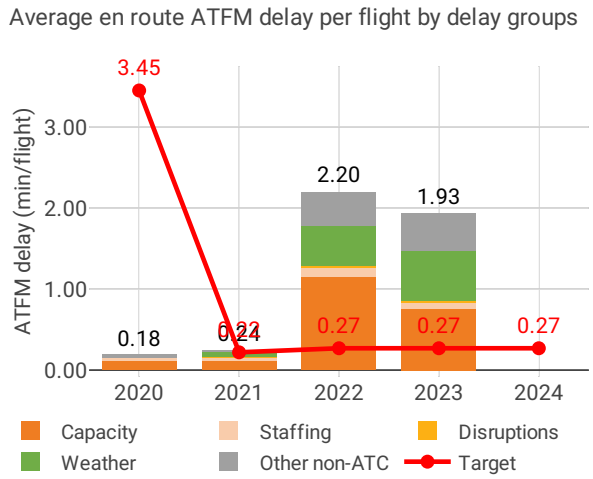
• Germany registered an average airport arrival ATFM delay of 0.54 minutes per flight in 2023, thus not achieving the local target of 0.45 minutes.

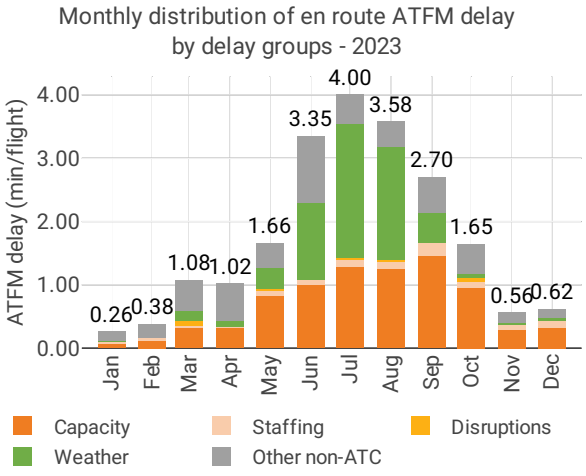
• Compared to 2022, average arrival ATFM delays in Germany were 91% higher in 2023, while the number of IFR arrivals increased by 8%.

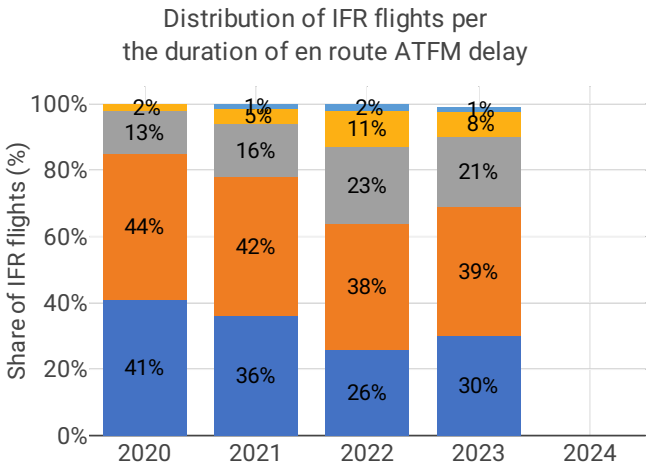
• The main reasons for delays were weather, accounting for 50% of delays, and other, non-ATC related causes, responsible for 49%.

4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)







Focus on en route ATFM delay

Summary of capacity performance

NSA's assessment of capacity performance

The GER 2023 en route capacity target of 0,27 min/flight was not met. The actual value for 2023 was 1,93 min/flight which is 1,66 min/flight above the target. This already shown in these current unstable times with catch ups still resulting from the pandemic, that there is an improvement in en route delay in comparison to the value of the previous year.
As stated in the national PP, the targets remain challenging / unachievable for DFS. It is rather difficult to react on the strong traffic increase from April 2022 onwards, significantly higher airspace complexity with increased military presence because of the war in the Ukraine. [At] the same time staffing measures having been slowed down during COVID with a negative effect on the staff situation (especially in Karlsruhe UAC Sector family South).
In addition, there were some events or framework conditions that led to further bottlenecks such as: Air Defender 2023 (this event forced DFS to make use of additional staff, which contributed significantly to the staff shortages until the end of the year); iCAS system implementation in Munich (the implementation did encounter some unforeseen issues and this led to a capacity reduction) and as ever, high traffic volatility and poor predictability (intensive work is being done with all system partners and with NM to improve flight plan adherence).
MUAC delays in 2023 were heavily influenced by the delay incurred from military exercise "Air Defender 2023" and two severe weather events in August 2023. Nonetheless, delays over 2023 remained within the performance targets.

Monitoring process for capacity performance

Data received from DFS was checked, consolidated and in terms of unclarities further information was requested. Besides this, there is a well established monitoring process where the NSA requested regularly information on the Capacity performance, remedial actions and their progress as well as on outlooks.
MUAC reports its en-route capacity performance to the states through the MUAC Finance and Performance committee. The performance data is also monitored on a monthly basis through the PMWG capacity report. This report is based on MUAC data and available PRU data, which is consolidated and analysed and the results compared to the reference and indicative values.
Value shown above for 2023 is in line with the SES Dashboard (https://www.eurocontrol.int/prudata/dashboard/vis/2023
It has to be considered that the ansperformance Dashboard (https://ansperformance.eu/data/) shows a value of 1,79 for 2023 and 2,04 for 2022.

Capacity planning

As stated in the national PP, the targets remain challenging / unachievable for DFS. It is rather difficult to react on the strong traffic increase from April 2022 onwards, significantly higher airspace complexity with increased military presence because of the war in the Ukraine, while at the same time there are e.g. staffing measures having been slowed down during COVID with a negative effect on the staff situation (especially in Karlsruhe UAC Sector family South). In addition, there were some events or framework conditions that led to further bottlenecks such as: Air Defender 2023 (this event forced DFS to make use of additional staff, which contributed significantly to the staff shortages until the end of the year); iCAS system implementation in Munich (the implementation did not proceed as planned and this led to a capacity reduction) and as ever, high traffic volatility and poor predictability (intensive work is being done with all system partners and with NM to improve flight plan adherence).
MUAC sector capacities are regularly reviewed and updated if technological or other developments allow to do so, leading to increased sector productivity. Staff planning is performed using STATFOR forecasts for traffic growth and taking into account an extrapolated increase of sector productivity for the planning horizon. MUAC has not experienced any structural staffing issues during 2023.

Application of Corrective Measures for Capacity (if applicable)

Strong traffic increase in 2023 with traffic peaks far above the pre-crisis level (esp. in Karlsruhe UAC Sector family South); Tense staffing situation in some sector families (especially in Karlsruhe UAC Sector family South); Higher airspace complexity with increased military activities, especially the Air Defender exercise in June 2023; Implementation of new ATS system iCAS II in Munich ACC, Some issues with the software quality required an extension of the transition phase; High traffic volatility and poor predictability.

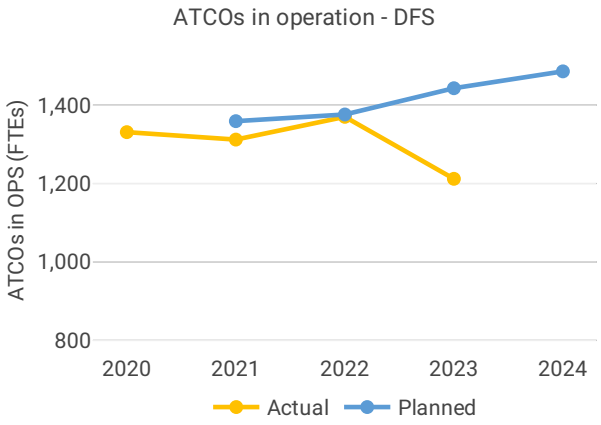
As the given reasons for the capacity situation are various, the NSA was, and will still be, in regular contact with the ANSPs to evaluate the situation in the course of the year, the outcome of the previous years remedial actions and the implementation of further remedial actions.
The mesaures put in place by the ANSP (DFS) are:
Cooperation with NM - eNM/S23 measures to relieve Karlsruhe UAC by re-routing traffic into adjacent ANSPs (implemented);
Increasing ATCO training capacity: increase training capacity in short term and examine if upper area control training to be provided by external academy to strengthen internal training (ongoing);
More extensive use of extra shifts - labour agreement provides flexibility for incentivised extra ATCO shifts (ongoing);
Flight plan adherence - improve the traffic predictability and avoid regulation measures below standard capacity values, which lead to wasted capacity (ongoing);
Implementation of ATFM tool iFMP in Karlsruhe UAC - more granular planning / use of sector capacities focussing on sector occupancy (implemented).
Identification of Significant Risks to Capacity Performance for Remainder of RP3
Risks are described above, as are the remedial measures planned and implemented.
The German NSA will monitor the actual capacity in general. The NSA is therefore planning to keep on receiving regular updates on the situation and accordingly have discussions with the ANSP on the evolution of the situation, measures in place and potential further measures.

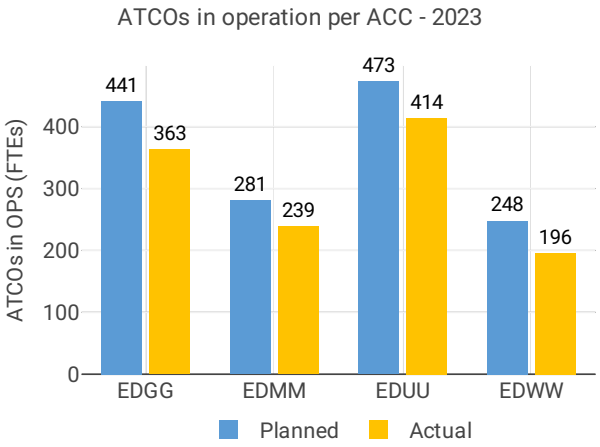
Additional Information Related to Russia's War of Aggression Against Ukraine There was an concentration of traffic due to the war in Ukraine on the European south-east axis. This exacerbated the capacity bottlenecks. Furthermore, there are increased airspace requirements from the military, which leads to more airspace complexity.
For the Hannover sectors of MUAC, shifting traffic patterns as a result of the continuing Russian war against Ukraine lead to increase of traffic in the Ruhr and Solling sectors.
The concentration of traffic on the south/east axis and thereby in the saturated family south of Karlsruhe UAC can at the time of submission of this monitoring report not be quantified.
War in Ukraine with increased military traffic leads to significantly higher airspace complexity. These extraordinary circumstances led to a significant increase in workload in numerous sector families, which had the effect of reducing capacity for civil traffic. The military traffic volume remains above average. DFS is in cooperation with the German Armed Forces to minimise the military impact on civil aviation.

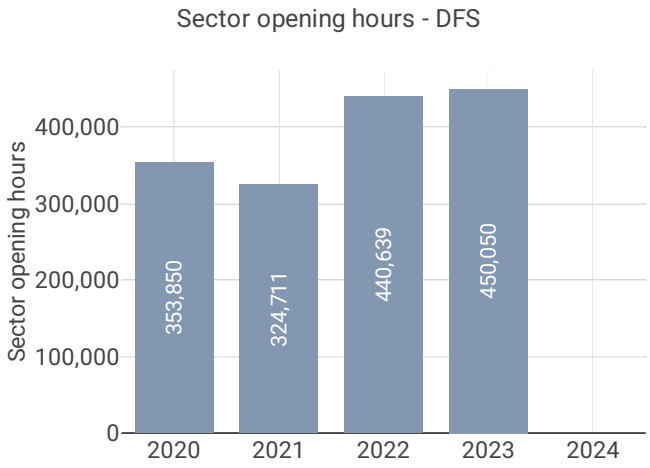
En route Capacity Incentive Scheme

DFS: Germany uses an incentive scheme based only on delays attributed to C,R,S,T,M & P delay codes. The new target for DFS was set at 0.168 minutes per flight and the actual performance is reported as 1.24 minutes per flight (CRSTMP only). This results in a reported malus of € 4 140 480.67**MUAC**: Germany uses an incentive scheme based only on delays attributed to C,R,S,T,M & P delay codes. The new target for MUAC was set at 0.092 minutes per flight and the actual performance is reported as 0.08 minutes per flight (CRSTMP only), which falls within the deadband. Neither bonus nor malus is due.****MUACCRSTMP Capacity target

4.2.2 Other indicators





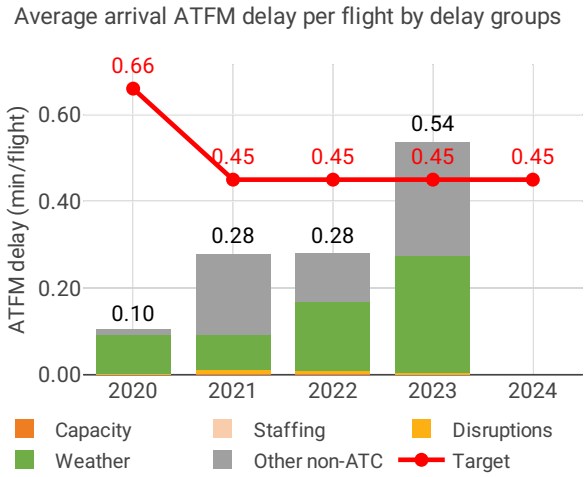


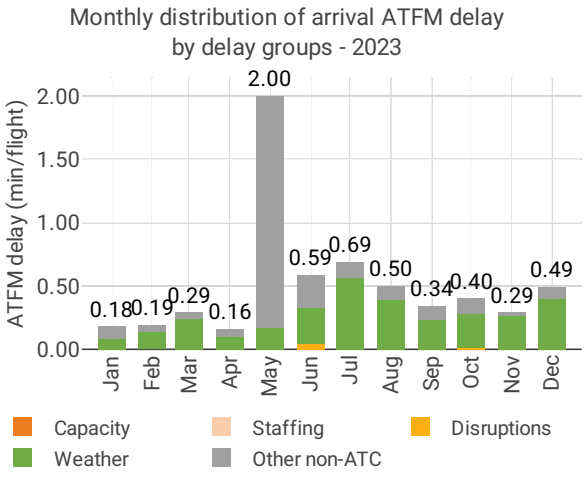
Focus on ATCOs in operations

Langen ACC: Significant reduction in ATCOs between 2022 - 2023**Munich ACC**: Significant reduction in ATCOs between 2022 - 2023A differentiated view of the number of additional ATCOs in OPS planned to start working in the OPS room vs. the number of ATCOs in OPS planned to stop working in the OPS room is not possible. Only netted values can be displayed here.
The German NSA and ANSPs question if this detailed level of ATCO planning figures in addition to the provision of annual total numers is legally required by the performance regulation to be included in the Performance Monitoring for RP3, as it is not a prescribed indicator. Furthermore, we question whether this level of detail should be monitored by the EC, as these planning figures are subject to multible changes, creating unnecessary burdens within the SES performance scheme reporting without providing reliable figures for a reasonable time-frame. Additionally, the planned evolution of that detailed level of ATCO numbers within an ANSP with multiple ACCs is socially sensitive.
Despite being a major driver for resolving current capacity and staffing issues, ATCO hiring and assignment cannot be considered a commitment due to the uncertainties associated with managing recruitment plans. The provided figures, even when reported annually, only offer a snapshot and do not guarantee a realistic view throughout the entire duration of RP3. Several factors contribute to the uncertainty of ATCO planning, including retirement rates, employee absences, maternity and parental leave, ATCO mobility issues, availability of suitable applicants, training success rates, and social agreements that impact ATCO availability per person and the total available Full-Time Equivalent (FTE) per ANSP. The demographic situation of ANSPs may also require hiring beyond traffic demand. Standardizing assumptions and disclosing information about ATCOs partially working in projects are necessary before reporting ATCO FTE.
For ANSPs with multiple national ACCs, ATCO hiring plans are managed at the ANSP level, but changes in traffic volumes, flows, and local human resources factors can influence assignments to different ACCs. It should be noted that social agreements, involving ANSPs, Unions, Ministries of Finance, and Public Administration, will affect the figures related to the numbers of additional ATCOs to be recruited during RP3 and working conditions such as salaries, extra hours, and rostering.

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)





Focus on arrival ATFM delay

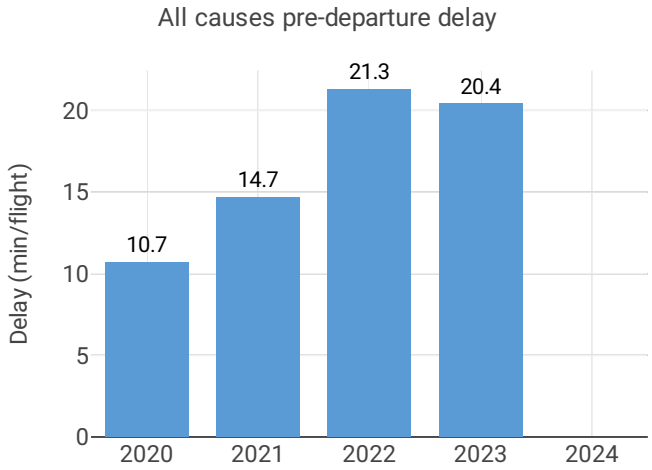
Germany identifies a total of 15 airports as subject to RP3 monitoring (Flight Operation at Berlin-Tegel were suspended on 08/11/2020 and the airport was finally decommissioned on 05/05/2021.)
However, in accordance with IR (EU) 2019/317 and the traffic figures, only 7 of those airports must be monitored for pre-departure delays.
The Airport Operator Data Flow, necessary for the monitoring of these pre-departure delays, is established for the 8 airports required. Nevertheless, the quality of the reporting does not allow for the calculation of the ATC pre-departure delay at Cologne (EDDK) , with more than 60% of the reported delay not allocated to any cause.
In 2023, traffic at the ensemble of German airports under monitoring was still 25% lower with respect to 2019, even if 8% higher than in 2022. The traffic recovery at Munich (EDDM), Hamburg (EDDH), Dusseldorf (EDDL) and Stuttgart (EDDS) is worse than at most European airports, with traffic still at 64% to 77% of 2019 levels.
Average arrival ATFM delays in 2023 was 0.54 min/arr, compared to 0.28 min/arr in 2022. The national target was not met.
ATFM slot adherence has slightly deteriorated but remains high (2023: 97.1%; 2022: 97.6%).

Average arrival ATFM delays in 2023 at German airports was 0.54 min/arr.
The most important delays were observed at Frankfurt (EDDF: 2019: 0.69 min/arr.; 2020: 0.19 min/arr.; 2021: 0.19 min/arr.; 2022: 0.38 min/arr.; 2023: 1.33 min/arr.) and Cologne (EDDK: 2020: 0.03 min/arr.; 2021: 0.80 min/arr.; 2022: 1.31 min/arr.; 2023: 1.04 min/arr.).
50% of the delays at these airports were attributed to weather, followed by 46% attributed to Aerodrome Capacity.
According to the German monitoring report:
There were very high weather delays in 2023. The ATC-related and therefore incentive-scheme relevant delay was extremely low.
The NSA recommends to improve the handling of weather delays, which, as shown in row 139, is already in progress.
Processes are in place to organise the handling of weather situations at airports as efficiently as possible. As the increase in weather delays in 2023 was exceptional, no additional measures have been implemented.

The German performance plan sets a national target on arrival ATFM delay for 2023 of 0.45 min/arr. This target was not met, with an actual performance of 0.54 min/arr. The incentive scheme uses modulated pivot values limited to CRSTMP delay causes. According to the German monitoring report, this pivot value for CRSTMP is 0.026 min/arr in 2023 and based on the attribution of the regulation reason, the actual

CRSTMP value for 2023 was 0.006 min/arr.
The NSA calculates a bonus of € 2 984 329.37.

4.3.2 Other terminal performance indicators (PI#1-3)



Airport level

	Avg arrival ATFM delay (KPI#2)				Slot adherence (PI#1)			
Airport name	2020	2021	2022	2023	2020	2021	2022	2023
Berlin Schönefeld	NA	0.94	0.04	0.01	97.7%	98.3%	99.3%	99.4%
Berlin-Tegel	0.05	NA	NA	NA	94.2%	NA	NA	NA
Bremen	0.01	0.02	0.01	NA	94.9%	92.5%	95.6%	96.6%
Dresden	NA	0.00	0.06	0.02	99.7%	98.8%	98.8%	98.8%
Düsseldorf	0.26	0.03	0.12	0.15	95.8%	98.2%	98.0%	98.3%
Erfurt	NA	NA	0.22	NA	96.0%	97.4%	98.4%	97.1%
Frankfurt	0.19	0.19	0.38	1.33	92.3%	96.4%	96.4%	96.3%
Hamburg	0.03	0.01	0.05	0.04	97.5%	97.6%	97.8%	97.8%
Hannover	NA	0.07	0.03	0.00	95.9%	94.4%	94.2%	95.7%
Köln-Bonn	0.03	0.80	1.31	1.04	97.2%	97.0%	97.8%	98.0%
Leipzig	0.14	0.31	0.20	0.53	98.9%	96.9%	99.0%	97.6%
München	0.08	0.13	0.22	0.29	94.3%	96.9%	97.6%	95.1%
Münster-Osnabrück	NA	NA	NA	NA	97.1%	97.1%	96.8%	97.8%
Nürnberg	NA	0.01	NA	0.01	97.6%	97.7%	98.2%	97.6%
Saarbrücken	NA	0.00	NA	NA	98.4%	98.7%	97.2%	97.9%
Stuttgart	NA	0.02	0.08	0.05	98.9%	98.9%	98.9%	98.9%

	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
Airport name	2020	2021	2022	2023	2020	2021	2022	2023
Berlin Schönefeld	0.04	0.32	0.27	0.46	8.2	12.3	20.1	19.9
Berlin-Tegel	NA	NA	NA	NA	6.7	NA	NA	NA
Bremen	0.01	0.10	0.14	0.17	3.4	4.9	11.1	11.7
Dresden	0.00	0.00	0.00	0.00	7.9	9.0	12.0	15.3
Düsseldorf	0.11	0.03	0.10	0.16	8.2	11.6	20.6	18.1
Erfurt	0.00	0.00	0.00	0.00	4.8	7.8	14.4	18.0
Frankfurt	0.28	0.14	0.18	0.33	16.5	20.4	27.9	25.8
Hamburg	0.08	0.12	0.34	0.50	7.4	10.2	19.0	20.0
Hannover	0.01	0.08	0.26	0.27	11.6	16.1	20.8	17.9
Köln-Bonn	NA	NA	NA	NA	10.8	16.7	25.7	20.4
Leipzig	0.16	0.12	0.12	0.15	15.2	21.9	19.2	18.5
München	0.01	0.07	0.02	0.00	7.3	9.0	16.7	18.4
Münster-Osnabrück	0.00	NA	0.01	0.01	8.6	9.9	10.6	10.4
Nürnberg	0.03	NA	0.17	0.17	13.4	15.9	22.7	21.6
Saarbrücken	0.00	0.00	0.02	0.00	3.3	6.3	14.4	12.1
Stuttgart	0.05	0.01	0.05	0.06	6.9	9.0	13.7	14.4

Focus on performance indicators at airport level

ATFM slot adherence

All German airports showed adherence above 95% and the national average was 97.1%, a slight decrease with respect to 2022 (97.6%). With regard to the 2.9% of flights that did not adhere, 2.1% was early and 0.8% was late.
According to the German monitoring report: *The performance slightly decreased, but stayed at a good level at all airports.*

ATC pre-departure delay

The share of unidentified delay reported by Cologne (EDDK) during the entire RP3 has been above 40% for more than 2 months in the year, preventing the calculation of this indicator.
The German monitoring report adds:
This data is not collected by DFS.
No initiatives are planned by DFS.
The calculation of the ATC pre-departure delay is based on the data provided by the airport operators through the Airport Operator Data Flow (APDF), which is implemented at all the airports above 80 000 movements.

However, there are several quality checks before EUROCONTROL can produce the final value which is established as the average minutes of pre-departure delay (delay in the actual off block time) associated to the IATA delay code 89 (through the APDF, for each delayed flight, the reasons for that delay have to be transmitted and coded according to IATA delay codes.
However, sometimes the airport operator has no information concerning the reasons for the delay in the off block, or they cannot convert the reasons to the IATA delay codes. In those cases, the airport operator might:
- Not report any information about the reasons for the delay for that flight (unreported delay)
- Report a special code to indicate they do not have the information (code ZZZ)
- Report a special code to indicate they do not have the means to collect or translate the information (code 999)

To be able to calculate with a minimum of accuracy the PI for a given month, the minutes of delay that are not attributed to any IATA code reason should not exceed 40% of the total minutes of pre-departure delay observed at the airport. In 2023, out of those airports above 80 000 movements, only EDDK still has a very high share of unexplained delay.
Finally, to be able to produce the annual figure, at least 10 months of valid data is requested by EUROCONTROL which has been the case for EDDF, EDDB, EDDL, EDDH, EDDM, EDDS. In order to provide information for remaining German airports, data provided by the airlines through the Aircraft Operator Data Flow (AODF) published by PRU has been used by the NSA for other airports for this reporting even if it covers only about 70% of the flights, while the airport operator data flow covers all flights at the airport.
In order to improve the situation EUROCONTROL contacts regularly the airports to check on the status of the reporting and provide support in the final correct implementation of the APDF. EUROCONTROL is also part of an ACI sub-group (APN) that includes several airports and informs them regularly on data provision issues.
It should be noted that in 2023 one more airport (EDDF) was able to provide enough data quality for the calculation of the indicator.

All causes pre-departure delay

The total (all causes) delay in the actual off block time at German airports in 2023 decreased on average at the monitored airports. The highest pre-departure delays were observed at Frankfurt (EDDF: 2023: 25.75 min/dep; 2022: 27.93 min/dep) that even with the reduction compared to 2022, results in the second highest pre-departure delay in the SES area.
According to the German monitoring report there are no initiatives planned by DFS in this area. The German monitoring report also mentions:
All cause departure delay is very generic and ATFM delay is only a small contributor. Departure delay can be generated by ATFM en-route delay (not only local airport, but the complete Network) but also reactionary

and turnaround delay, technical issues with the aircraft, airport operations, problems with passengers and or luggage, etc. In other words, it is not always possible to address a specific reason as this delay is quite generic.

5 COST-EFFIENCY - GERMANY

5.1 PRB monitoring

• The en route 2023 actual unit cost of Germany was 62.96 €2017, -0.5% lower than the determined unit cost (63.29 €2017). The terminal 2023 actual unit cost was 227.93 €2017, +15% higher than the determined unit cost (198.63 €2017).

• The en route 2023 actual service units (14M) were -8.8% lower than the determined service units (15M).

• In 2023, the en route actual total costs were -83 M€2017 lower (-8.8%) than determined. This substantial reduction was primarily due to the reduction in staff costs (-79 M€2017, or -11%). This reduction was influenced by the impact of the inflation as, in nominal terms, there was a slight increase in actual staff costs of +0.6% when compared to the determined figures. The PRB highlights that the actual number of ATCOs in OPS FTEs for DFS were -16% below plan.

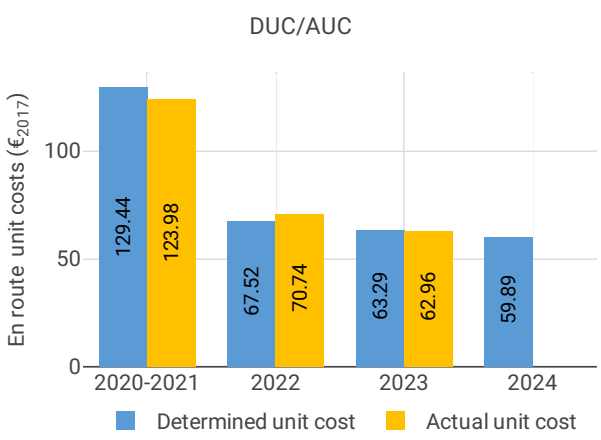
• DFS spent 93 M€2017 in 2023 related to costs of investments for both en route and terminal charging zones, -16% less than determined (111 M€2017). This reduction was a result of a significant underspend in the cost of capital (-59%), which is largely due to lower interest rates, affected by the pension scheme's interest balance and the ANSP's net interest income. Additionally, there is a gap in depreciation costs (-13%), mainly as a result of the decision not to proceed with the implementation of iCAS in Langen.

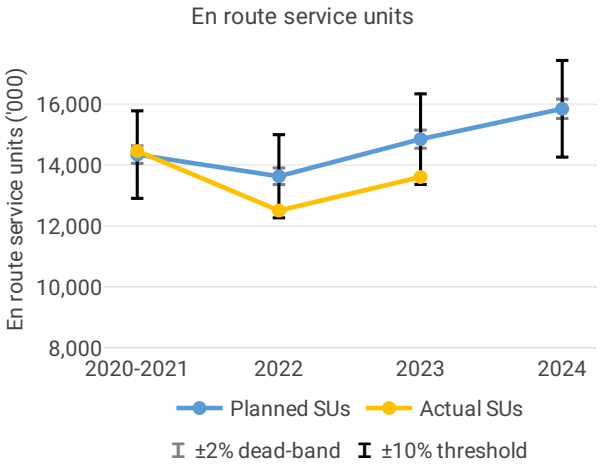
• The en route actual unit cost incurred by users in 2023 was 78.59€ (+16% above the 2023 DUC), while the terminal actual unit cost incurred by users was 276.30€ (+29% above the 2023 DUC). The difference between the AUCU and the DUC for the en route charging zone is primarily attributed to the inflation adjustment (+114 M€), while for the terminal charging zone, it is mainly due to lower than planned SUs (-18%).

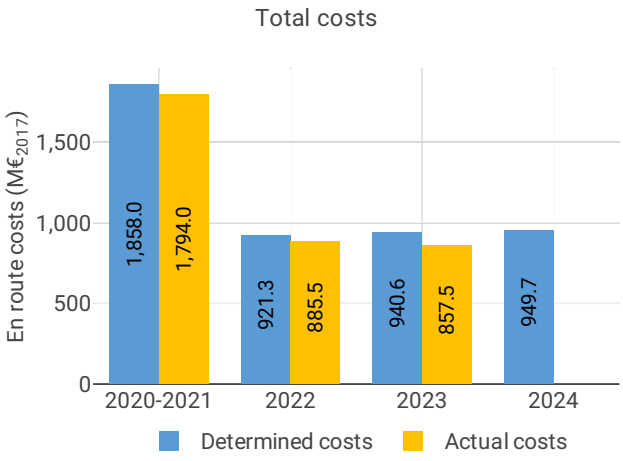
• The PRB will take into consideration the implementation of the RP3 performance plans when assessing the RP4 cost-efficiency targets and urges Germany to take immediate, adequate, and proportionate action to implement the relevant ATCO and investment plans committed to in the RP3 performance plan.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)

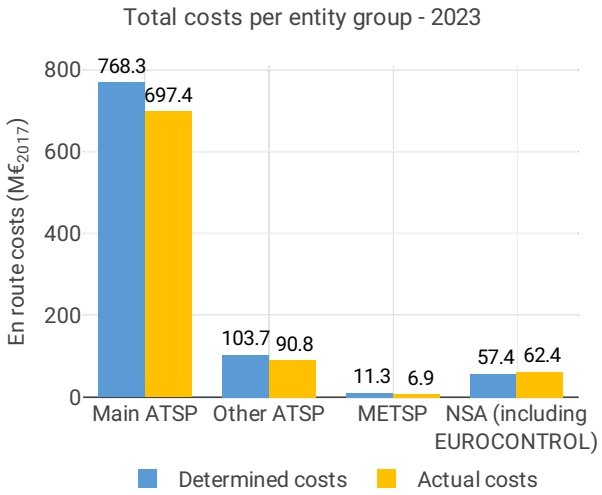


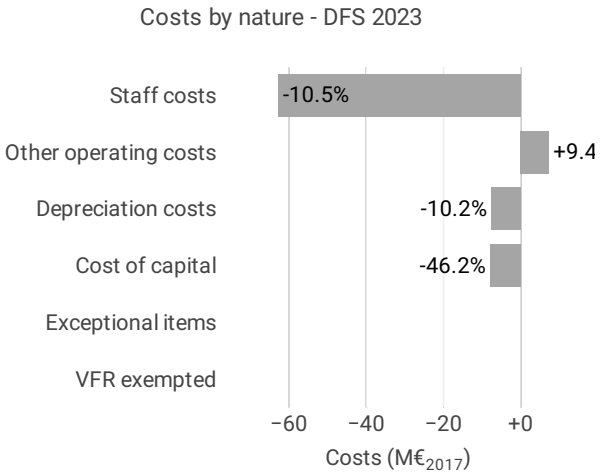




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	1,877	1,000	1,024	NA
Determined costs	1,935	977	1,010	1,034
Difference costs	-59	23	14	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.1%	1.5%	1.7%
Determined inflation index	NA	107.2	108.8	110.6
Actual inflation rate	NA	8.7%	6.0%	NA
Actual inflation index	NA	116.4	123.4	NA
Difference inflation index (p.p.)	NA	+9.1	+14.5	NA





Focus on unit cost

AUC vs. DUC

In 2023, the en route AUC was -0.5% (or -0.33 €2017) lower than the planned DUC. This results from the combination of significantly lower than planned en route costs in real terms (-8.8%, or -83.2 M€2017) and significantly lower than planned TSUs (-8.4%). It should be noted that actual inflation index in 2023 was +14.5 p.p. higher than planned.

En route service units

The difference between actual and planned TSUs (-8.4%) falls outside the ±2% dead band, but does not exceed the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of en route revenues is therefore shared between the ANSP and the airspace users.

En route costs by entity

Actual real en route costs are -8.8% (-83.2 M€2017) lower than planned. This is the result of lower costs for the main ANSP, DFS (-9.2%, or -70.9 M€2017), the other ANSP (MUAC (Germany), -12.5%, or -12.9 M€2017) and the MET service provider (-38.6%, or -4.4 M€2017) and higher costs for the NSA/EUROCONTROL (+8.8%, or +5.0 M€2017).

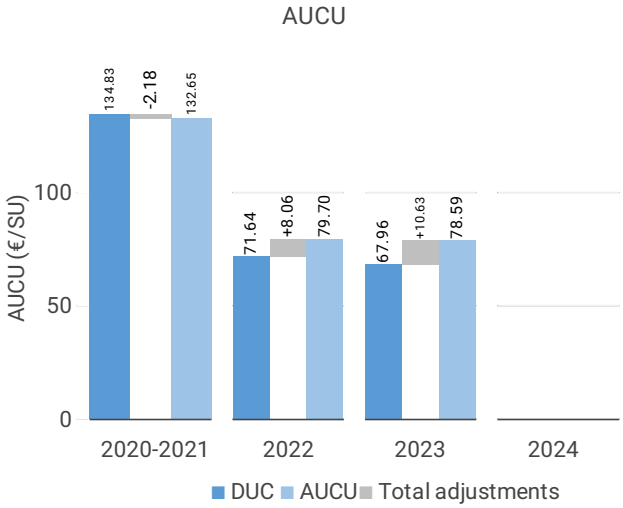
En route costs for the main ANSP at charging zone level

Significantly lower than planned en route costs for DFS (-9.2%, or -70.9 M€2017) result from:

- Significantly lower staff costs (-10.5%), mainly due to inflation index impact as in nominal terms staff costs are higher than planned by +1.5%, due to new wage collective agreement, compensation for the inflation and extraordinary payments for additional shifts and overtime.

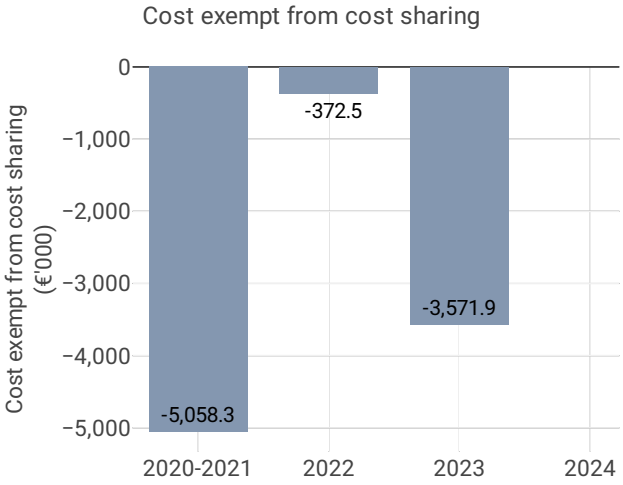
- Significantly higher other operating costs (+9.4%), as a result of inflation, higher prices of gas, more external staff employed than expected and intensification of the recruiting and training activities related to operational staff.
- Significantly lower depreciation (-10.2%), mainly due to "*the decision not to implement iCAS in Langen, including the dedicated projects. Additionally, some maintenance actions such as iCAS product management, transmission paths and LAN for ATS Components lead to the reduction*".
- Significantly lower cost of capital (-46.2%), mainly due to the coverage gap for interest on pensions, which is recalculated annually based on differences between planned and actual interest rates. The 2023 cost of capital exclude the income of commercial papers, which had previously been included in the actual costs of 2021 and 2022.

5.2.2 Actual unit cost incurred by the users (AUCU) (PI#1)



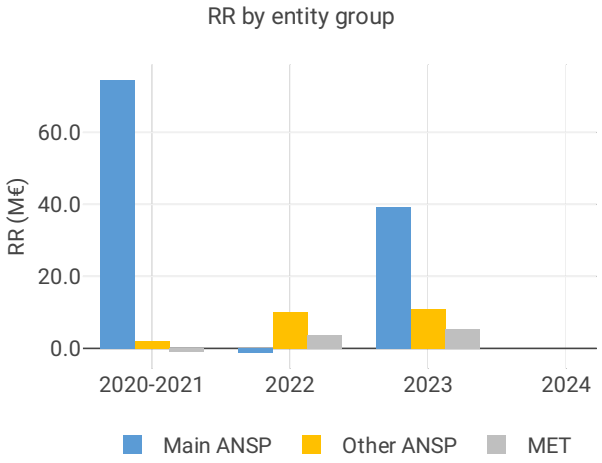
AUCU components (€/SU) – 2023

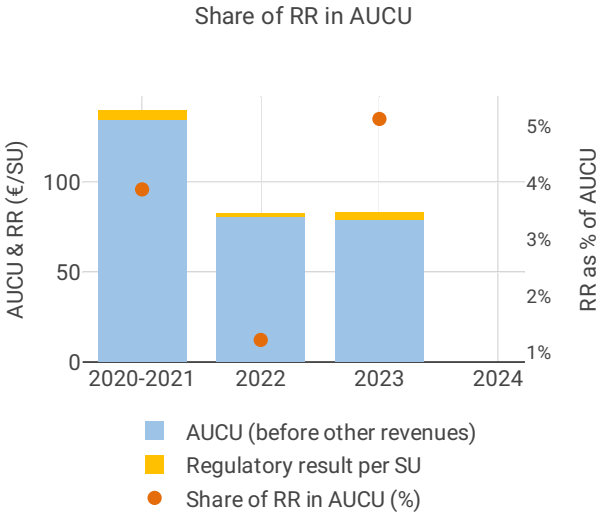
Components of the AUCU in 2023	€/SU
DUC	**67.96**
Inflation adjustment	8.39
Cost exempt from cost-sharing	-0.26
Traffic risk sharing adjustment	3.08
Traffic adj. (costs not TRS)	0.43
Finantial incentives	-0.30
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-0.69
Application of lower unit rate	0.00
Total adjustments	10.63
AUCU	**78.59**
AUCU vs. DUC	**+15.6%**

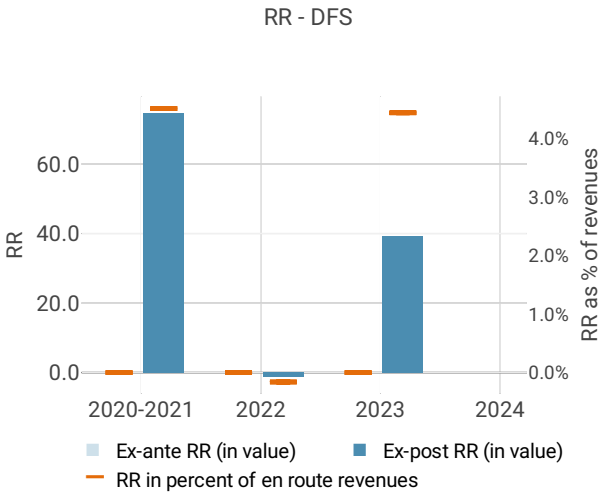


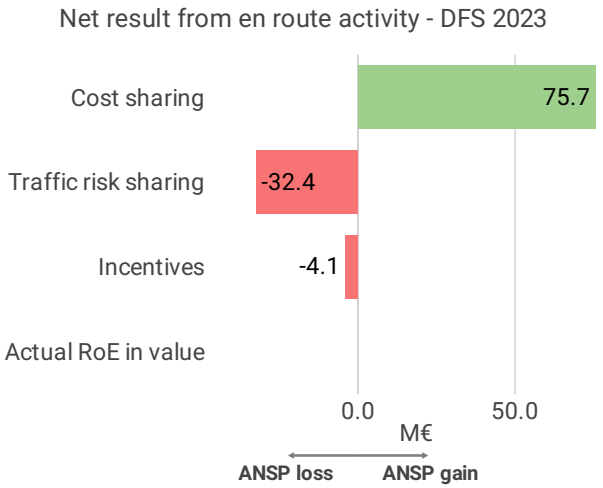
Cost exempt from cost sharing by item - 2023	€'000	€/SU
New and existing investments	-8,031.3	-0.59
Competent authorities and qualified entities costs	-1,611.9	-0.12
Eurocontrol costs	6,650.6	0.49
Pension costs	-1,595.4	-0.12
Interest on loans	0.0	0.00
Changes in law	1,016.1	0.07
Total cost exempt from cost risk sharing	**-3,571.9**	**-0.26**

5.2.3 Regulatory result (RR)









Focus on regulatory result

DFS net gain on activity in the Germany en route charging zone in the year 2023

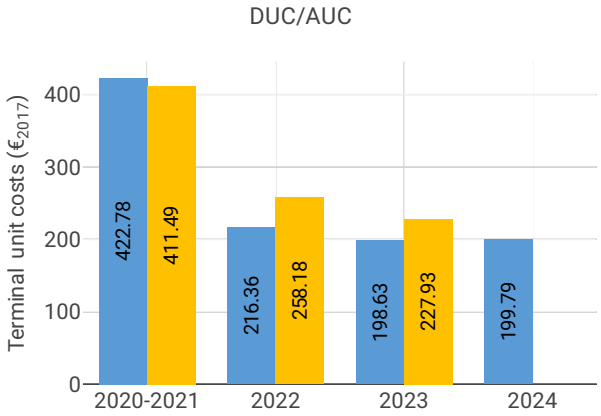
DFS reported a net gain of +39.2 M€, as a combination of a gain of +75.7 M€ arising from the cost sharing mechanism, with a loss of -32.4 M€ arising from the traffic risk sharing mechanism and a loss of -4.1 M€ relating to financial incentives.

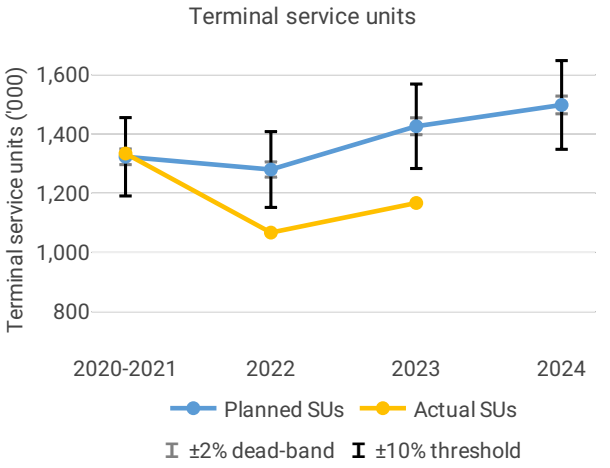
DFS overall regulatory results (RR) for the en route activity

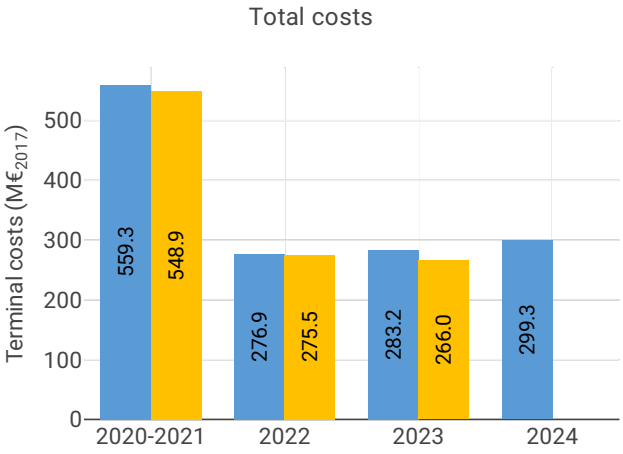
Ex-post, the overall RR taking into account the net gain from the en route activity mentioned above (+39.2 M€) amounts to +39.2 M€ (4.4% of the en route revenues), as the RoE for DFS has been set to zero. The resulting ex-post rate of return on equity is 3.4%.

5.3 Terminal charging zone

5.3.1 Unit cost (KPI#1)

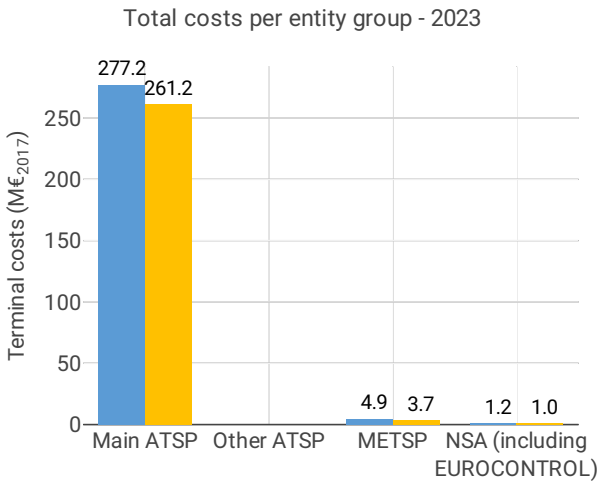


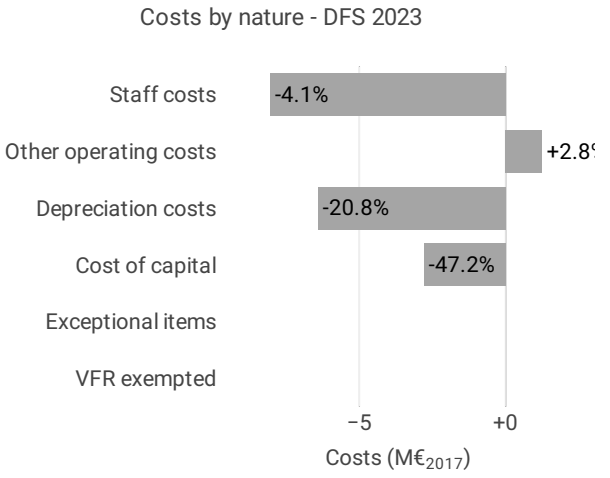




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	576	313	321	NA
Determined costs	584	294	305	327
Difference costs	-8	19	16	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	1.1%	1.5%	1.7%
Determined inflation index	NA	107.2	108.8	110.6
Actual inflation rate	NA	8.7%	6.0%	NA
Actual inflation index	NA	116.4	123.4	NA
Difference inflation index (p.p.)	NA	+9.1	+14.5	NA





Focus on unit cost

AUC vs. DUC

In 2023, the terminal AUC was +14.8% (or +29.3 €2017) higher than the planned DUC. This results from the combination of significantly lower than planned TNSUs (-18.2%) and significantly lower than planned terminal costs in real terms (-6.1%, or -17.3 M€2017). It should be noted that actual inflation index in 2023 was +14.5 p.p. higher than planned.

Terminal service units

The difference between actual and planned TNSUs (-18.2%) falls outside the ±10% threshold foreseen in the traffic risk sharing mechanism. The resulting loss of terminal revenues is therefore shared between the ANSP and the airspace users.

Terminal costs by entity

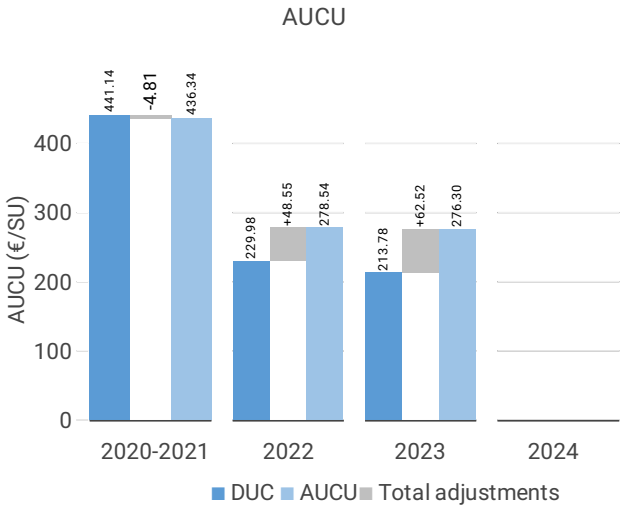
Actual real terminal costs are -6.1% (-17.3 M€2017) lower than planned. This is the result of lower costs for the main ANSP, DFS (-5.8%, or -16.0 M€2017), the MET service provider (-23.3%, or -1.1 M€2017) and the NSA (-11.4%, or -0.1 M€2017).

Terminal costs for the main ANSP at charging zone level

Significantly lower than planned terminal costs in real terms for DFS in 2023 (-5.8%, or -16.0 M€2017) result from:

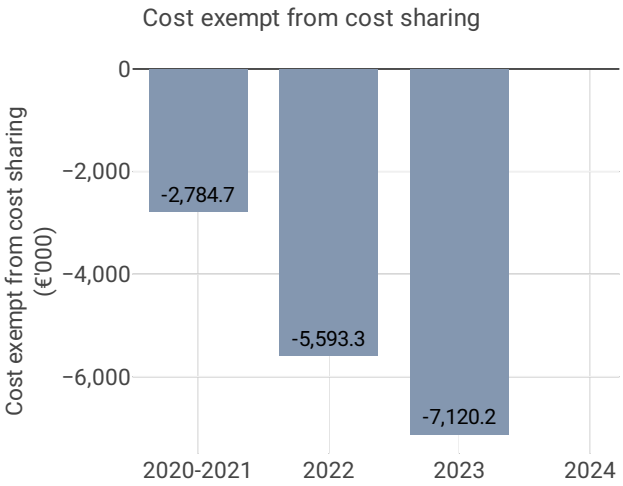
- Lower staff costs (-4.1%),mainly due to inflation index impact since in nominal terms staff costs are higher than planned by +8.7%, due to new wage collective agreement, compensation for the inflation and extraordinary payments for additional shifts and overtime due to staff shortages.
- Higher other operating costs (+2.8%), as a result of inflation, higher prices of gas, more external staff employed than expected and intensification of the activities of recruiting staff.
- Significantly lower depreciation (-20.8%), is mainly due to "*the project Tower ATS next Generation, which is part of the Program ZAAS. Additionally, the maintenance activity ILS and the project Remote Tower Control as well as some projects and maintenance actions led to the reduction in 2023*".
- Significantly lower cost of capital (-47.2%), mainly due to the coverage gap for interest on pensions, which is recalculated annually based on differences between planned and actual interest rates. The 2023 cost of capital the exclude the income of commercial papers, which had previously been included in the actual costs of 2021 and 2022.

5.3.2 Actual unit cost incurred by the users (AUCU) (PI#1)



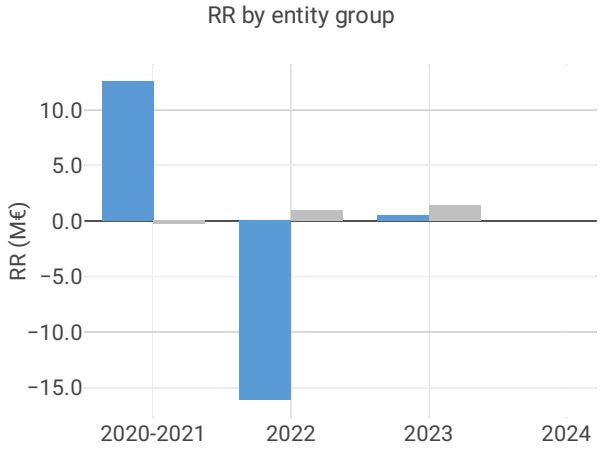
AUCU components (€/SU) – 2023

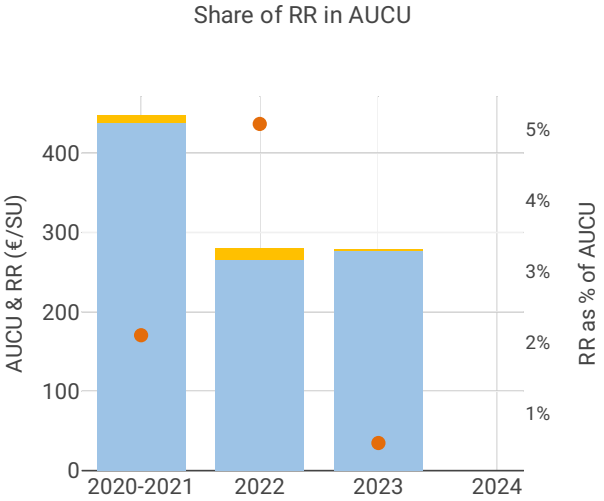
Components of the AUCU in 2023	€/SU
DUC	**213.78**
Inflation adjustment	30.42
Cost exempt from cost-sharing	-6.10
Traffic risk sharing adjustment	35.21
Traffic adj. (costs not TRS)	1.00
Finantial incentives	2.56
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-0.57
Application of lower unit rate	0.00
Total adjustments	62.52
AUCU	**276.30**
AUCU vs. DUC	**+29.2%**

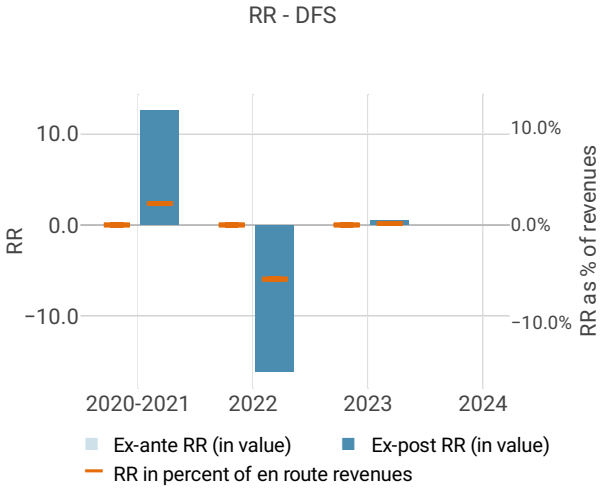


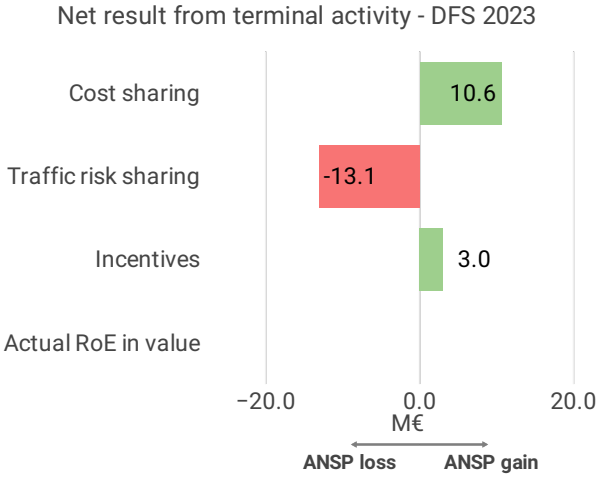
Cost exempt from cost sharing by item - 2023	€'000	€/SU
New and existing investments	-6,409.6	-5.49
Competent authorities and qualified entities costs	-135.9	-0.12
Eurocontrol costs	0.0	0.00
Pension costs	-574.8	-0.49
Interest on loans	0.0	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-7,120.2**	**-6.10**

5.3.3 Regulatory result (RR)









Focus on regulatory result

DFS net gain on activity in the Germany terminal charging zone in the year 2023

DFS reported a net gain of +0.5 M€, as a combination of a gain of +10.6 M€ arising from the cost sharing mechanism, with a loss of -13.1 M€ arising from the traffic risk sharing mechanism and a gain of +3.0 M€ relating to financial incentives.

DFS overall regulatory results (RR) for the terminal activity

Ex-post, the overall RR taking into account the net gain from the terminal activity mentioned above (+0.5 M€) amounts to +0.5 M€ (0.1% of the terminal revenues), as the RoE for DFS has been set to zero. The resulting ex-post rate of return on equity is 0.1%.