PRB | Performance review body of the single european sky

Performance Review Body Monitoring Report

Romania - 2021

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1 OVERVIEW

1.1 Contextual information

National performance plan adopted following Commission Decision (EU) 2022/2424 of 5 December 2022

List of ACCs 1
Bucharest ACC

No of airports in the scope of the performance plan:
- **≥80'K** 1
- **<80'K** 1

Exchange rate (1 EUR=)
2017: 4.56629 RON
2021: 4.91854 RON

Share of Union-wide:
- **traffic (TSUs) 2021** 4.3%
- **en route costs 2021** 3.0%

Share en route / terminal costs 2021 91% / 9%

En route charging zone(s)
Romania

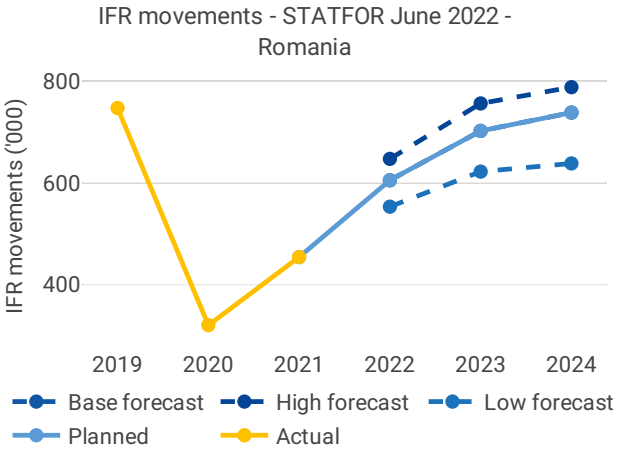
Terminal charging zone(s)
Romania

Main ANSP
- ROMATSA

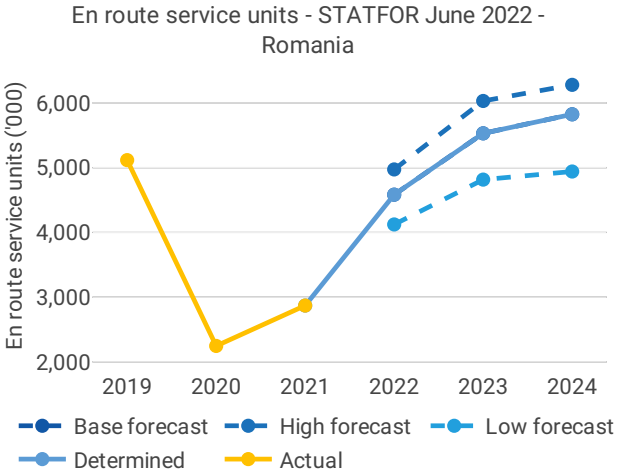
Other ANSPs
–

MET Providers
–

1.2 Traffic (En route traffic zone)

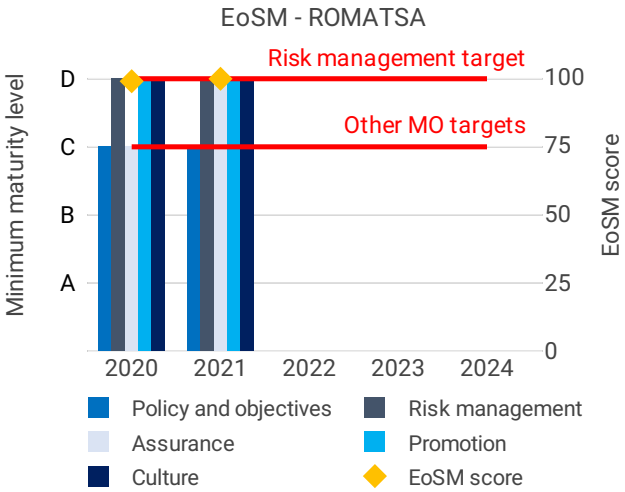


- Romania recorded 454K actual IFR movements in 2021, +42% compared to 2020 (320K).
- Actual 2021 IFR movements represent 61% of the actual 2019 level (747K).



- Romania recorded 2,870K actual en route service units in 2021, +27% compared to 2020 (2,246K).
- Actual 2021 service units represent 56% of the actual 2019 level (5,117K).

1.3 Safety (Main ANSP)

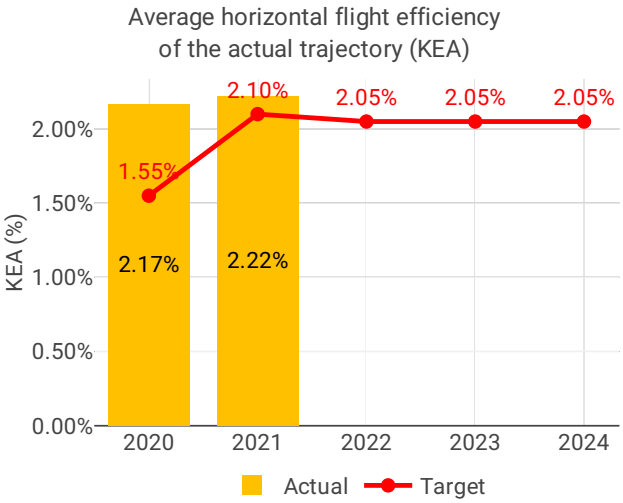


• ROMATSA demonstrated high safety performance in 2021 and has further exceeded the EoSM targets level in one additional management objective ahead of the plan. ROMATSA, together with the NSA, have implemented various measures and corrective actions to ensure maintaining high safety performance.

• Romania recorded stable performance with respect to safety occurrences, with no runway incursions and a marginal decrease in the rate of separation minima infringements relative to 2020. The NSA closely monitors the safety occurrences via continuous oversight function.

• ROMATSA should improve its safety management by implementing automated safety data recording systems.

1.4 Environment (Member State)



• Romania achieved a KEA performance of 2.22% compared to its target of 2.10% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 0.05 p.p. compared to 2020.

• The NSA states that in spite of the significant traffic reduction, the areas avoided by airspace users (Black Sea, Eastern Ukraine, and Crimea Area), related RAD restrictions and applicable traffic bans (between Ukraine and Russia) remained unchanged in the area in 2021.

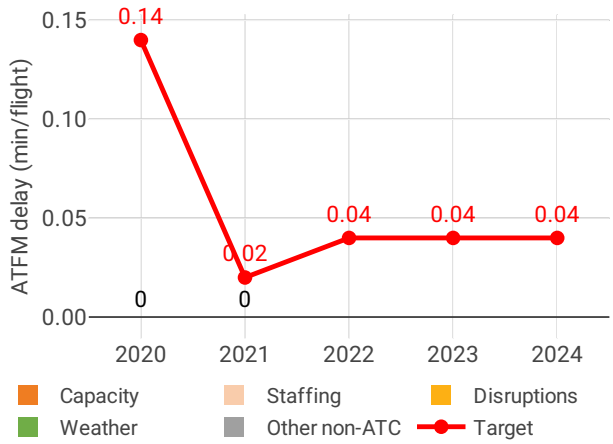
• Despite the reasons mentioned above, KEP is at the lowest values in five years and SCR is just 0.01 p.p. worse than the lowest value occurred in 2020.

• The share of CDO flights has decreased in comparison to 2020, but is still higher than pre-pandemic levels.

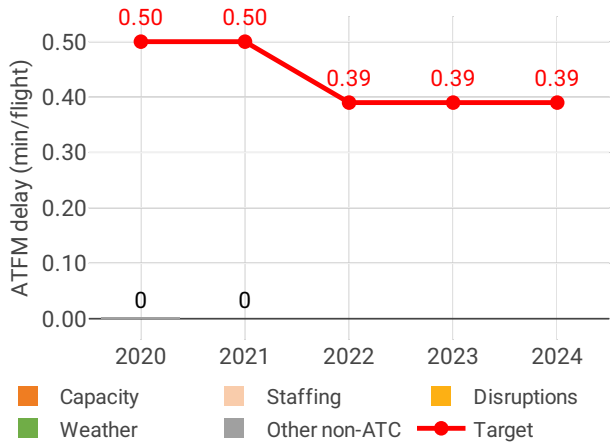
• Additional time in terminal airspace and additional taxi time have further decreased in 2021 by 23% and 15% respectively.

1.5 Capacity (Member State)

Average en route ATFM delay per flight by delay groups



Average arrival ATFM delay per flight by delay groups



• Romania registered zero minutes of average en route ATFM delay per flight during 2021, thus meeting the local breakdown value of 0.02.

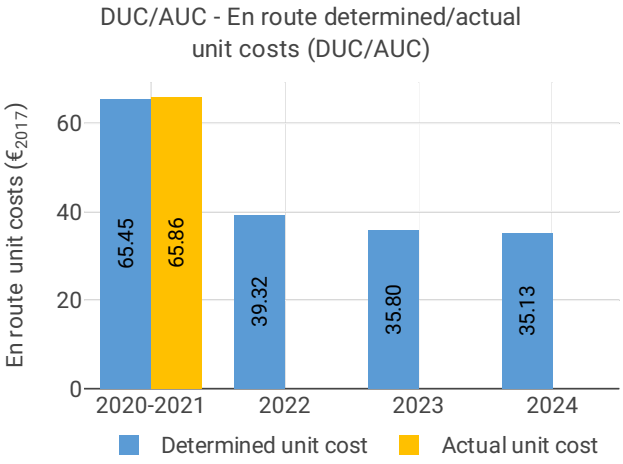
• Delays should be considered in the context of lower traffic: in Romania, IFR movements in 2021 were 39% lower than in 2019.

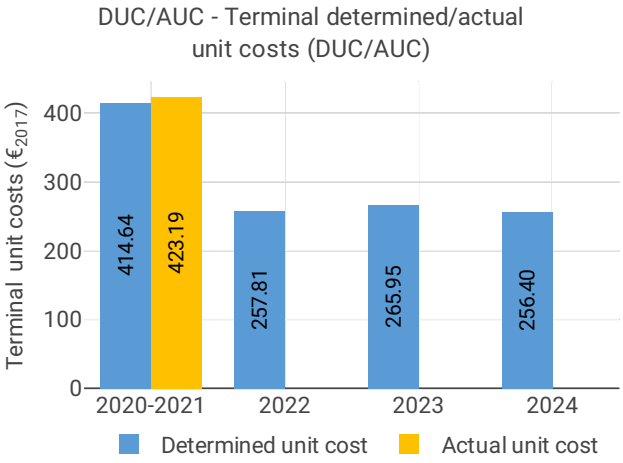
• Romania has received additional traffic due to airspace closures East of the SES airspace potentially expediting the recovery. The 2019 levels are likely to be reached in 2023 in high and base growth scenarios. An increase in the number of ATCOs in OPS is planned in Bucharest ACC by the end of RP3.

• The yearly total of sector opening hours in Bucharest ACC was 68,607, showing a 0.3% decrease compared to 2020. Sector opening hours are 0.0% below 2019 levels.

• Bucharest ACC registered 6.52 IFR movements per one sector opening hour in 2021, being 39.2% below 2019 levels.

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





• The en route 2020/2021 actual unit cost of Romania was 65.86 €2017, in line with the determined unit cost (65.45 €2017). The terminal 2020/2021 actual unit cost was 423.19 €2017, +2.1% higher than the determined unit cost (414.64 €2017).

• The en route 2021 actual service units (2,870K) were -1.0% lower than determined (2,898K).

• In 2021, Romania increased total costs by +0.2 M€2017 (+0.1%) compared to determined. Other operating costs decreased significantly by -5.4 M€2017 (-20%) mainly due to a delay in flight validation services. This is offset by an increase in staff costs of +4.9 M€2017 (+4.0%), which increased due to a higher than planned defined benefits provision for pensions.

• ROMATSA spent 19.0 M€2017 in 2021 related to costs of investments, +1.9% more than determined (18.7 M€2017).

• The en route actual unit cost incurred by users in 2020/2021 was 67.34€, while the terminal actual unit cost incurred by users was 438.35€.

2 SAFETY - ROMANIA

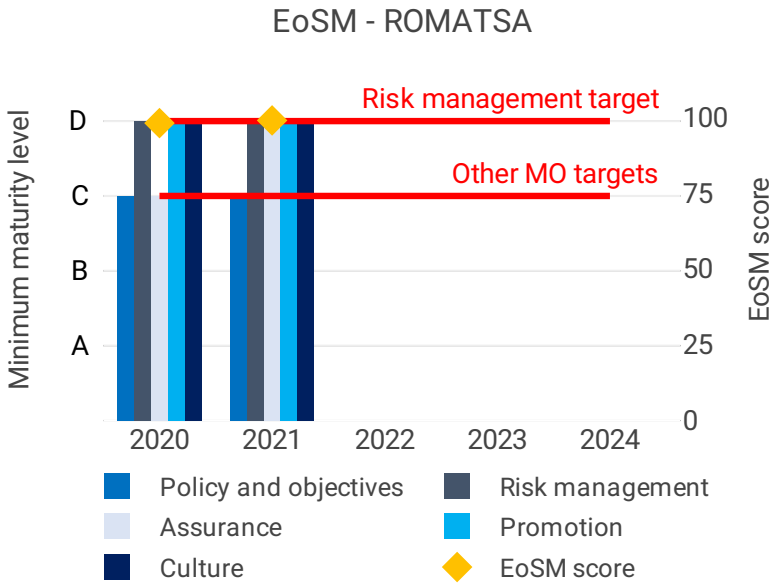
2.1 PRB monitoring

• ROMATSA demonstrated high safety performance in 2021 and has further exceeded the EoSM targets level in one additional management objective ahead of the plan. ROMATSA, together with the NSA, have implemented various measures and corrective actions to ensure maintaining high safety performance.

• Romania recorded stable performance with respect to safety occurrences, with no runway incursions and a marginal decrease in the rate of separation minima infringements relative to 2020. The NSA closely monitors the safety occurrences via continuous oversight function.

• ROMATSA should improve its safety management by implementing automated safety data recording systems.

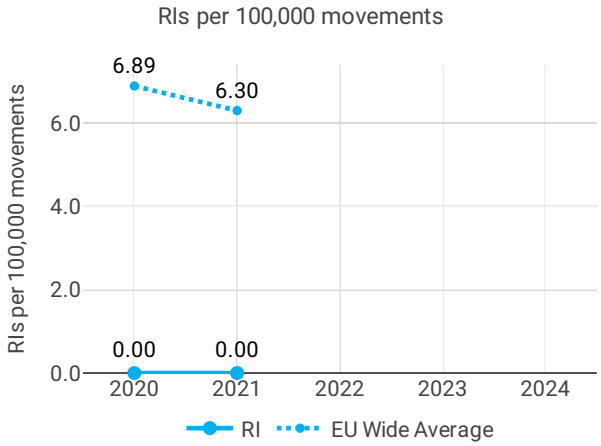
2.2 Effectiveness of Safety Management (EoSM) (KPI#1)

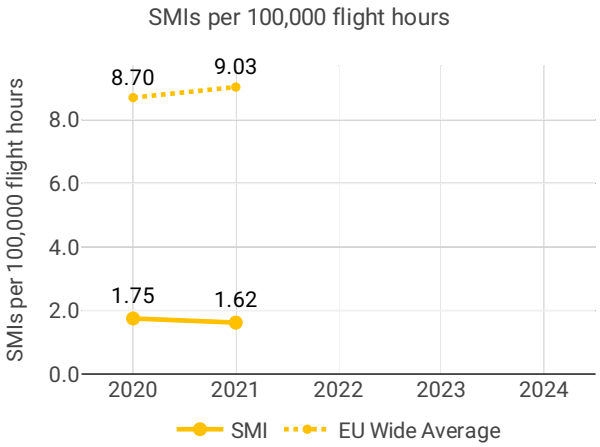


Focus on EoSM

Slight increase in maturity has been observed with respect to 2020. Nevertheless, all five EoSM components of the ANSP meet, or exceed, already the 2024 target level.

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





3 ENVIRONMENT - ROMANIA

3.1 PRB monitoring

• Romania achieved a KEA performance of 2.22% compared to its target of 2.10% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 0.05 p.p. compared to 2020.

• The NSA states that in spite of the significant traffic reduction, the areas avoided by airspace users (Black Sea, Eastern Ukraine, and Crimea Area), related RAD restrictions and applicable traffic bans (between Ukraine and Russia) remained unchanged in the area in 2021.

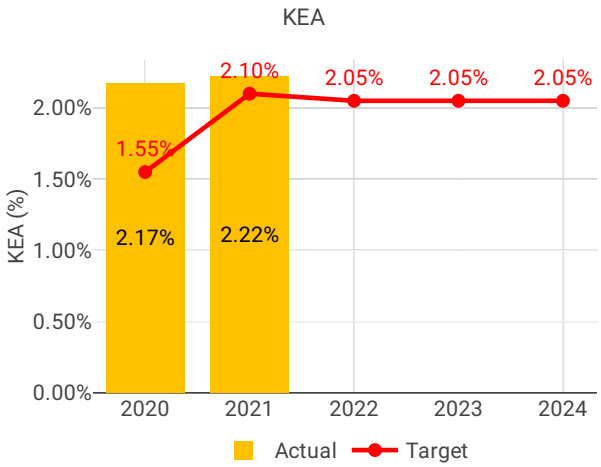
• Despite the reasons mentioned above, KEP is at the lowest values in five years and SCR is just 0.01 p.p. worse than the lowest value occurred in 2020.

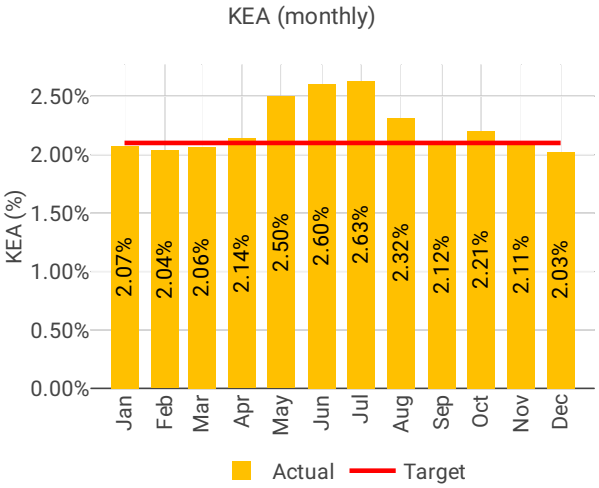
• The share of CDO flights has decreased in comparison to 2020, but is still higher than pre-pandemic levels.

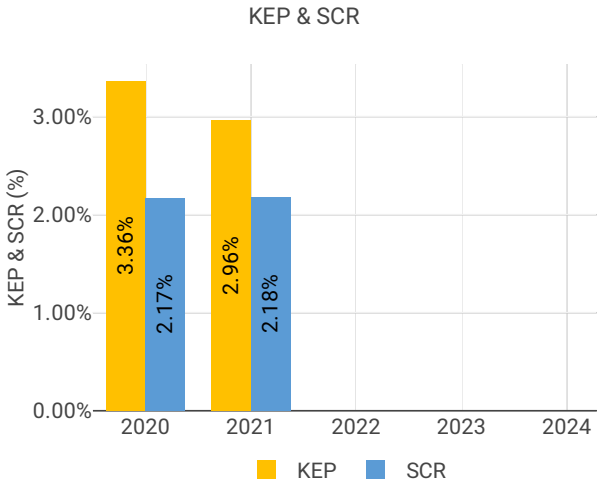
• Additional time in terminal airspace and additional taxi time have further decreased in 2021 by 23% and 15% respectively.

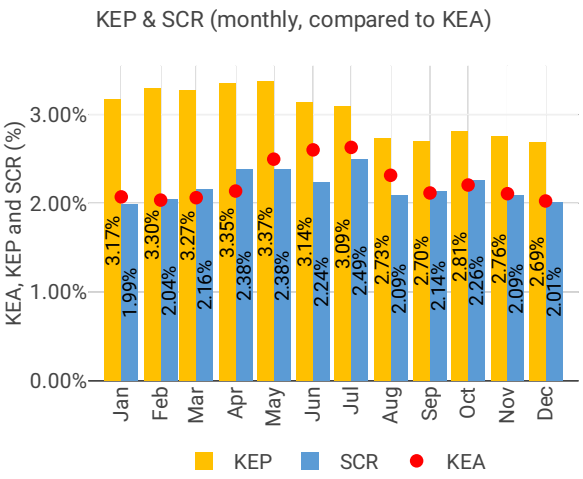
3.2 En route performance

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)



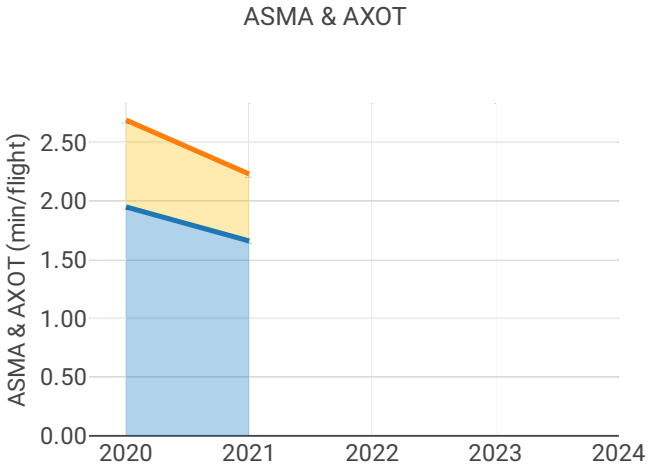


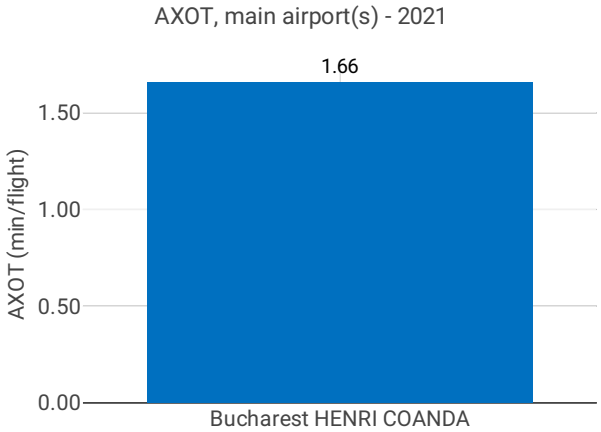


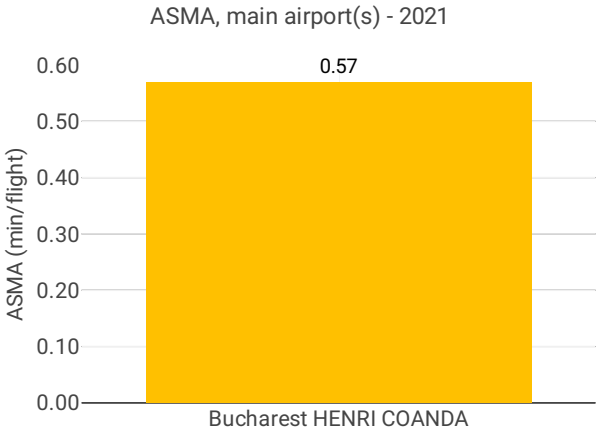


3.3 Terminal performance

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







Focus on ASMA & AXOT

AXOT

Additional taxi-out times at Bucharest/Otopeni (LROP; 2019: 2.67 min/dep.; 2020: 1.95 min/dep.; 2021: 1.66 min/dep.) were similar to those observed in 2020, with additional taxi-out times higher in the first trimester, probably due to de-icing operations.

According to the Romanian monitoring report, following measures are planned or already implemented, although no dates are provided:

a) Implemented:

- *clearance delivery position;*
- *ASMGCS at Otopeni TWR - advance surface management ground control system;**- Common procedure between Bucharest Airports National Company and TWR Otopeni for repairing works periods on the manoeuvering area, ie pre-established alternative standard taxi routes;
- Common procedure regarding ATFM (according to EU Reg 255/2010) regarding the regulation of traffic in situations that may influence the airport's capacity.

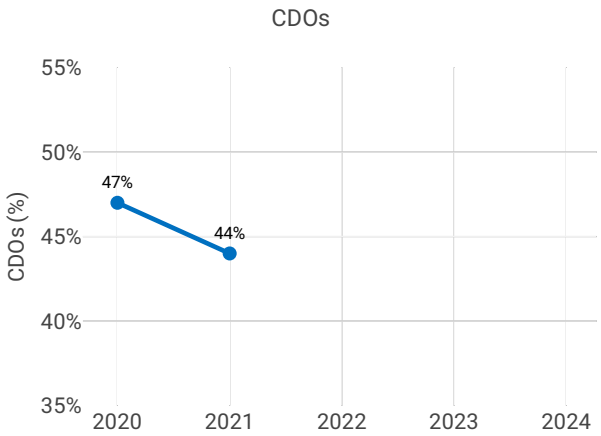
b) Planned:

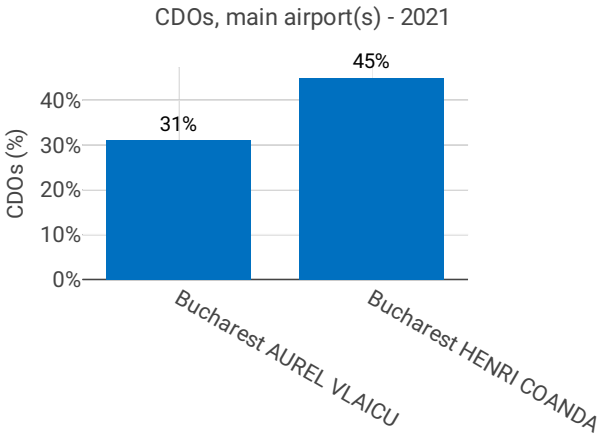
- Modernisation ASMGCS - Implementation of Advanced Tower Messaging
- AMAN at Bucuresti TMA - Arrival Manager.

ASMA

Additional ASMA times at Bucharest/Otopeni (LROP; 2019: 0.75 min/arr.; 2020: 0.74 min/arr.; 2021: 0.57 min/arr.) decreased in the first half of 2021 and then increased again in the second half.
According to the Romanian monitoring report, following measures are planned or already implemented, although no dates are provided:
a) Implemented:
- SID / STAR RNAV 1;
- as current practice, vectorizations for shortening the trajectories when the traffic is of low complexity (DIRECT TO);
- Bucharest TMA resectorisation - implementation of new sector: DIRECTOR.
b) Planned:
- implementation of AMAN - Arrival Manager;
- implementation of RNP (required navigation performance) approach procedures.

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





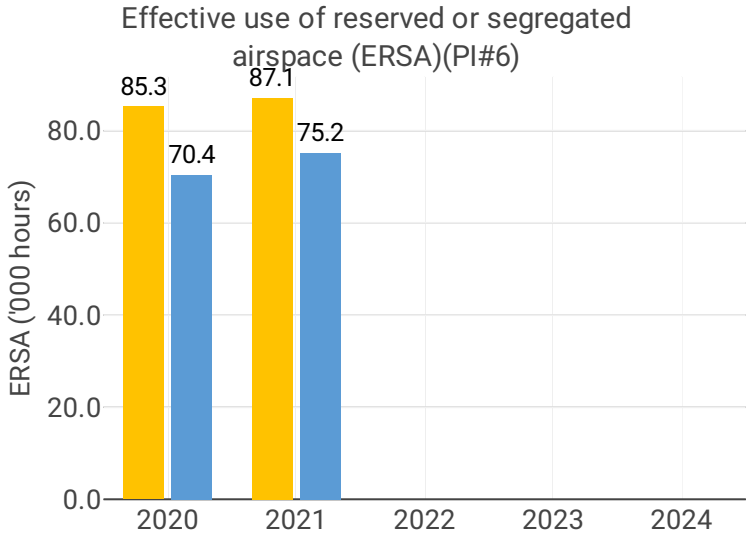
Focus CDOs

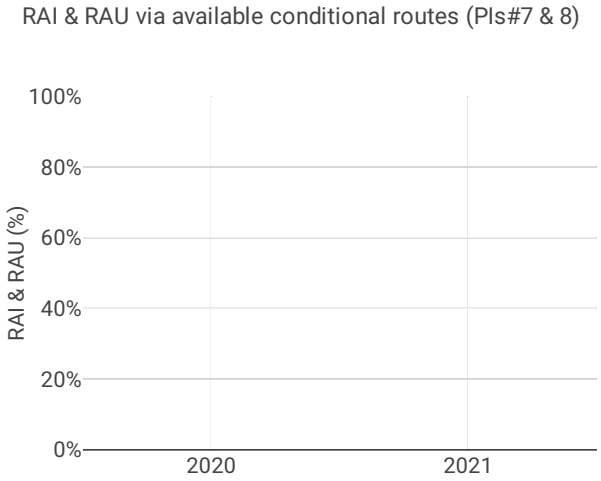
Bucharest/Otopeni (LROP), being the major airport in the Romania, has the highest share of CDO flights: 45.5% which is well above the overall RP3 value in 2021 (30.5%) despite a decrease from 48.4% in 2020.
The share of CDO flights at Bucharest/Băneasa (LRBS) increased slightly above the overall RP3 value to 30.9%.
The monthly values are significantly lower from April to September.According to the Romanian monitoring report: *Resumption of AIP Romania amendment process, chap. 2.21 Noise abatement procedures with the following specific provisions for aircraft operating at Otopeni Airport:*
"In order to reduce aircraft noise and emissions, ATC gives clearances allowing continuous descent (CD) traffic situation permitting. Continuous descent can be planned based on track distance information of the STAR or, when vectored, on estimated track distance provided by ATC. "
NSA: continuous oversight and FLT procedures approval.

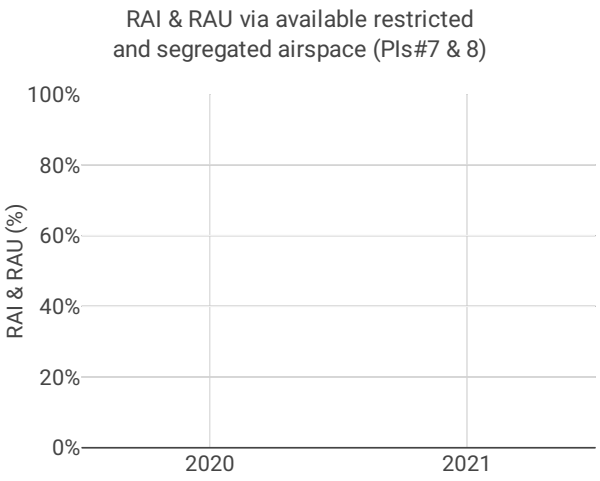
Airport level

	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
Bucharest HENRI COANDA	1.95	1.66	NA	NA	NA	0.74	0.57	NA	NA	NA	48%	45%	NA	NA	NA
Bucharest AUREL VLAICU	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	31%	31%	NA	NA	NA

3.4 Civil-Military dimension







Focus on Civil-Military dimension

Update on Military dimension of the plan

Information from annual monitoring report 2020 is repeated, no new information provided as update.

Military - related measures implemented or planned to improve capacity

No new information provided.

Initiatives implemented or planned to improve PI#6

ROMATSA: The FUA Concept is fully implemented in Romania at all specific levels, as follows: at Level 1 through National Air Space Management Counsil, at Level 2 through AMC, as civil-military body and at Level 3 through civil-military coordination offices colocated. At FAB level, an AirSpace Policy Body is defined for strategic coordonation between Romania and Republic of Bulgaria. Furthermore, Romanian operational procedures allow the crossing of most military training zones by civil aircraft with a prior co-ordination.
NSA: continuous oversight. PI monitored for statistical purposes, no target assigned in the Performance Plan.

Initiatives implemented or planned to improve PI#7

No data available

Initiatives implemented or planned to improve PI#8

No data available

4 CAPACITY - ROMANIA

4.1 PRB monitoring

• Romania registered zero minutes of average en route ATFM delay per flight during 2021, thus meeting the local breakdown value of 0.02.

• Delays should be considered in the context of lower traffic: in Romania, IFR movements in 2021 were 39% lower than in 2019.

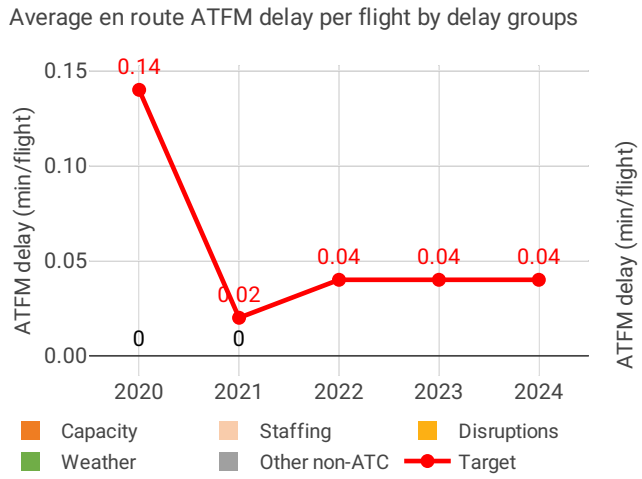
• Romania has received additional traffic due to airspace closures East of the SES airspace potentially expediting the recovery. The 2019 levels are likely to be reached in 2023 in high and base growth scenarios. An increase in the number of ATCOs in OPS is planned in Bucharest ACC by the end of RP3.

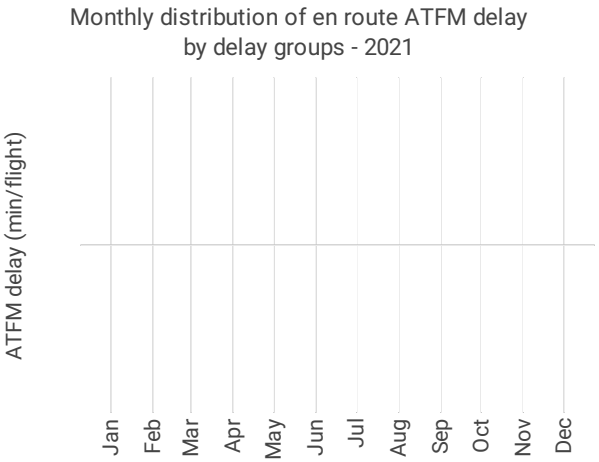
• The yearly total of sector opening hours in Bucharest ACC was 68,607, showing a 0.3% decrease compared to 2020. Sector opening hours are 0.0% below 2019 levels.

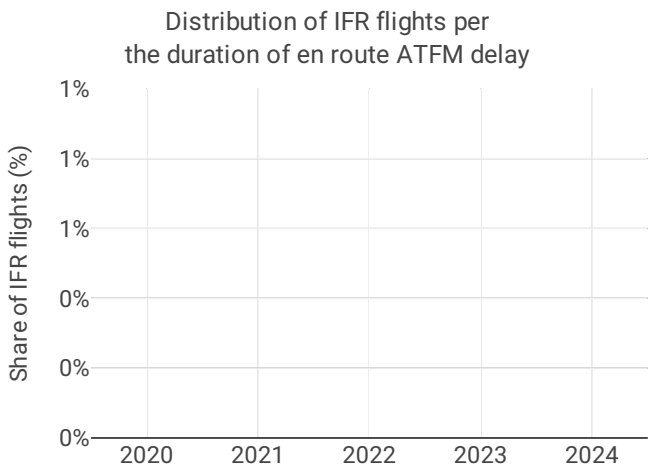
• Bucharest ACC registered 6.52 IFR movements per one sector opening hour in 2021, being 39.2% below 2019 levels.

4.2 En route performance

4.2.1 En route ATFM delay (KPI#1)







Focus on en route ATFM delay

Summary of capacity performance

Romania experienced an increase in traffic from 320k flights in 2020 to 454k flights in 2021, with zero ATFM delay. However, traffic levels were still substantially below the 747k flights in 2019.

NSA's assessment of capacity performance

The significantly reduced traffic in the pandemic context allowed during 2021 optimised traffic flows and values (0) for ATFM delay per flight. Nevertheless, in the perspective of future traffic recovery, ROMATSA continues the airspace strucure improvement process, by supporting Free Route operations expansion in the context of SEEFRA, by removing the ATS Routes above FL105 within Bucuresti CTA during Summer Season 2021 and by sectorisation improvements (planned for Q1 2023).
ROMATSA has become a member of the collaborative, pan-European, Centralised Code Assignment and Management System (CCAMS), starting with 15th of October 2021.
CCAMS aims to overcome the current and future shortages of the Secondary Surveillance Radar (SSR) codes used by Air Traffic Control for radar services and provides a unique SSR code to each flight operating in the countries using the service. CCAMS optimises the efficiency of European SSR code management by introducing the dynamic transponder codes allocation, allowing the simultaneous use of the same code in volumes of airspace separated by a buffer zone.
This approach assures the optimal use of SSR codes and reduces the SSR codes shortage and conflicts in the CCAMS region. Through CCAMS application within București FIR the SSR codes management is more efficient, increasing safety.
It also determines a reduction of the airborne SSR code changes, thus decreasing ATC workload and allowing for more flights to be handled.
Being among the pioneers of Mode S implementation in the entire FIR, CCAMS activation makes ROMATSA one of the few air navigation service providers in Europe that have operationalized both concepts.

Monitoring process for capacity performance

ROMATSA provided regularly inputs on capacity availability in the context of NOP Rolling Seasonal Plan implemented by the Network manager at European network level. The expected en-route performance was and is regularly evaluated by the NM for each ACC, including Bucuresti ACC, in terms of planned/maximum sector openings in relation with the estimated traffic demand.

Capacity planning

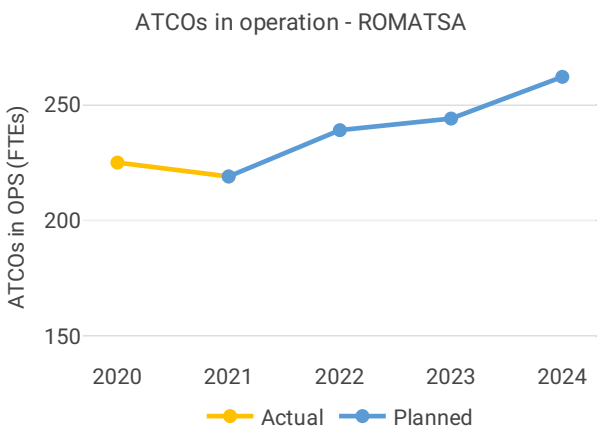
In the context of COVID-19 crisis, the capacity as previously planned and published within an annual NOP (Network Operatios Plan) has been adapted accordingly by adoption of capacity plans under a NOP Rolling Seasonal Plan format, including periods of 6 weeks, based on the expected traffic demand regularly provided by the Network Manager. These plans refer to:
- sector openings
- maximum possible sector openings
- availability of support of operational staff.
- special events and projects, etc.

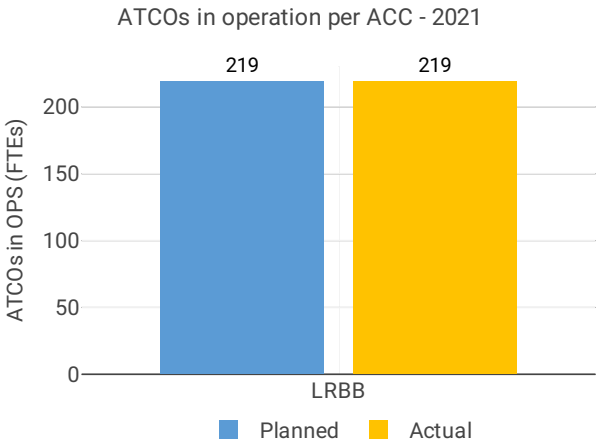
Bucuresti ACC ensured a stable sector opening plan with no sector capacity reduction throughout this difficult period, with the possibility to increase the number of sectors plan, if the traffic is increasing and support operational staff working as normal.

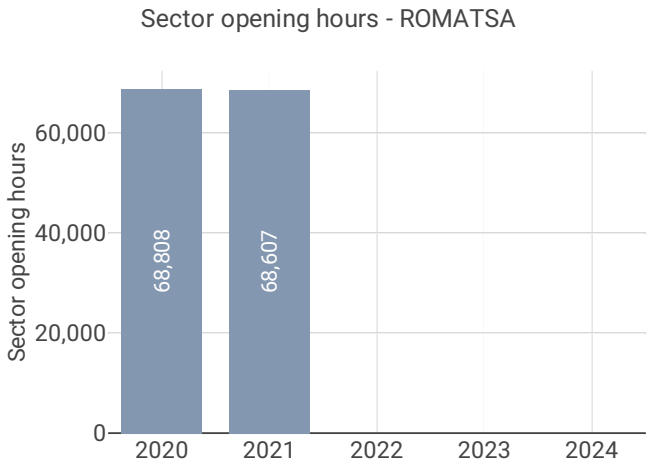
Application of Corrective Measures for Capacity (if applicable)

As presented during the RP2 revision process, ROMATSA faces an ageing ATCO personnel. This is especially true in ACC Bucharest, where more than 1/3 of ATCOs are over 50 years old and will be over age 55 at the end of RP3. It takes between 3 to 5 years to fully train and authorize an ATCO for ACC, therefore a recruitment process was started in 2017 and should continue until the end of RP3, as was approved through the RP2 revision in December 2018, to guarantee proper staffing levels to ensure safety and capacity. As it can be seen in the figure, without recruitment capacity in ACC Bucharest would not meet the required needs.
NSA: revision to the Performance Plan which will be transmitted to the EC, after the Decision of the Inconsistency nr 2283/2022
Capacity targets are met, continuous oversight, licencing of new ACOs and training approvals.

4.2.2 Other indicators





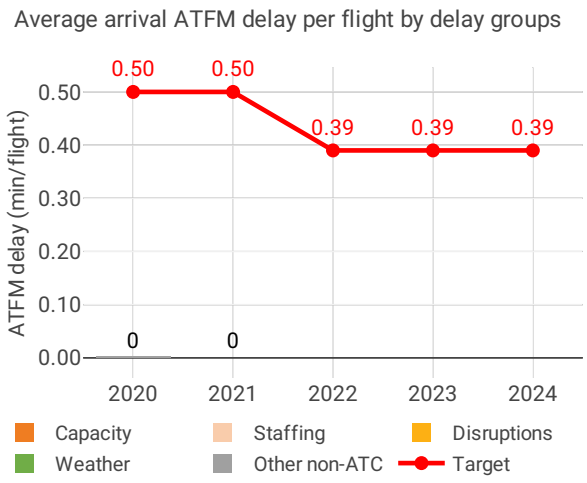


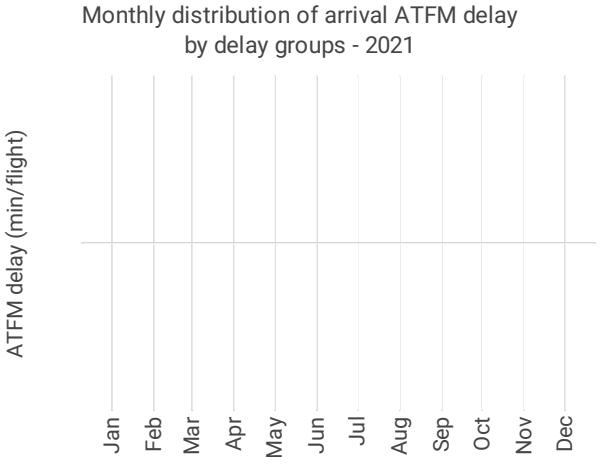
Focus on ATCOs in operations

Due to the impact of the COVID19 pandemic, training of new ATCOs has been delayed and the 24 ATCOs who were supposed to be partially licensed at the end of 2021 will become full FTE in 2022. In what concerns ATCOs that have stopped working in the OPS room, apart from the 2 that were retired, 1 has lost its licence due to medical reasons, 2 more were moved to the simulator due to health issues that prevent them from working in shifts as required in OPS and 1 has temporarily taken over the position of Director for Bucharest Regional Subsidiary.

4.3 Terminal performance

4.3.1 Arrival ATFM delay (KPI#2)





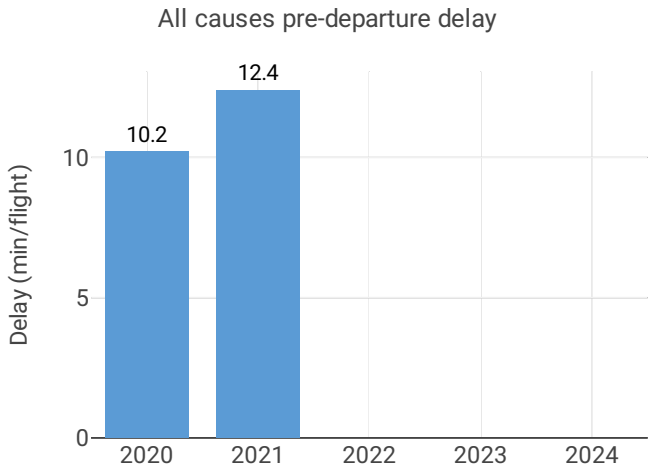
Focus on arrival ATFM delay

Romania includes 2 airports under RP3 monitoring. However, in accordance with IR (EU) 2019/317 and the traffic figures, only Bucharest/Otopeni (LROP) must be monitored for the pre-departure delay indicators. The Airport Operator Data Flow, necessary for the monitoring of these delays, is correctly implemented where required and the monitoring of all capacity indicators can be performed. Nevertheless, the quality of the reporting from Bucharest does not allow for the calculation of the ATC pre-departure delay, with more than 60% of the reported delay not allocated to any cause.
Traffic at these 2 airports decreased in 2021 is still 40% lower than in 2019, regardless of a 37% increase with respect to 2020.
Average arrival ATFM delays in 2021 was 0 min/arr, same as in 2020.
ATFM slot adherence has improved (2021: 98.2%; 2020: 96.6%).

The significantly reduced traffic due to the pandemic context allowed ROMATSA to reach the capacity indicator for terminal and airport with 0 delays.According to the Romanian monitoring report: *ROMATSA and Bucharest Airports National Company continue to work together to ensure optimum capacity level at terminal level as this impacts the entire network. On one hand ROMATSA has implemented at Otopeni TWR a different ATM system with A-SMGCS component, composed of a surveillance subsystem (operational for over three years) and an electronic flight strips subsystem (transferred into operations on April 8th 2019), interfaced via OLDI with the System covering the rest of the ATS units.*
There is in place also a common procedure between Bucharest Airports National Company and TWR Otopeni for repairing works periods on the manoeuvring area, ie pre-established alternative standard taxi routes;
According to EU Reg 255/2010 a common procedure regarding ATFM for the regulation of traffic in situations that may influence the airport's capacity is in place.
Implementation of AMAN at Bucharest APP is foreseen also during RP3 and also the upgrade of ASMGCS to include Advance Tower Messaging.
The NSA intends to do a revision to the Performance Plan which will be transmitted to the EC, after the Decision of the Inconsistency nr 2283/2022
The monitoring report also mentions that *Capacity targets are met, continuous oversight, licencing of new ACOs and training approvals.*
External factor regarding CNAB: administrative decisions regarding the works and maintenance at the airport.

The provisional national target on arrival ATFM delay in 2021 was met.
In accordance with Article 3 (3) (a) of Implementing Regulation (EU) 2020/1627: The incentive scheme shall cover only the calendar years 2022 to 2024.

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
Bucharest AUREL VLAICU	NA	NA	NA	NA	100.0%	100.0%	NA%	NA%
Bucharest HENRI COANDA	0	NA	NA	NA	96.6%	98.1%	NA%	NA%

	ATC pre departure delay (PI#2)				All causes pre departure delay (PI#3)			
Airport name	2020	2021	2022	2023	2020	2021	2022	2023
Bucharest AUREL VLAICU	NA	NA	NA	NA	NA	NA	NA	NA
Bucharest HENRI COANDA	0.10	0.21	NA	NA	10.2	12.4	NA	NA

Focus on performance indicators at airport level

ATFM slot adherence

With the drastic drop in traffic, the share of regulated departures from Bucharest/Otopeni (LROP) until July 2021.
Only 44 departures in total from Bucharest Aurel Vlaicu (LRBS) were regulated in the entire year, with a 100% compliance.
The national average, driven by Bucharest/Otopeni, was 98.2%, an improvement with respect to 2020's performance (96.6%). With regard to the 1.8% of flights that did not adhere, 0.8% was early and 1% was late.The Romanian NSA reports: According to EU Reg 255/2010 a common procedure regarding ATFM for the regulation of traffic in situations that may influence the airport's capacity is in place between Bucharest Airports National Company and ROMATSA

ATC pre-departure delay

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 properly implemented at Bucharest/Otopeni (the only Romanian airport subject to monitoring of this indicator).
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 and/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.
Finally, to be able to produce the annual figure, at least 10 months of valid data is requested by EUROCONTROL.
Bucharest/Otopeni (LROP) had proper reporting before March 2020, but the share of unidentified delay rose well above 40% since the pandemic (preventing the calculation of this indicator) due to the special traffic composition. In the second half of 2021 the quality of the reporting improved but still not enough for the calculation, and in the beginning of 2022 has deteriorated again.

All causes pre-departure delay

The total (all causes) delay in the actual off block time at Bucharest/Otopeni increased in 2021 (LROP: 2020: 10.22 min/dep.; 2021: 12.45 min/dep.), with the highest delays observed in Summer.
According to the Romanian monitoring report: *In 2021 departure delays at LROP were due to aerodrome capacity mainly during the summer season. ROMATSA and Bucharest Airports National Company continue*

to work together to ensure optimum capacity level at terminal level as this impacts the entire network. On one hand ROMATSA has implemented at Otopeni TWR a different ATM system with A-SMGCS component, composed of a surveillance subsystem (operational for over three years) and an electronic flight strips subsystem (transferred into operations on April 8th 2019), interfaced via OLDI with the System covering the rest of the ATS units. An upgrade to the system is planned for 2022-2023 to include Advance Tower Messaging.
There is in place also a common procedure between Bucharest Airports National Company and TWR Otopeni for repairing works periods on the manoeuvring area, ie pre-established alternative standard taxi routes;
According to EU Reg 255/2010 a common procedure regarding ATFM for the regulation of traffic in situations that may influence the airport's capacity is in place.
Implementation of AMAN at Bucuresti TMA is foreseen also during RP3

5 COST-EFFIENCY - ROMANIA

5.1 PRB monitoring

• The en route 2020/2021 actual unit cost of Romania was 65.86 €2017, in line with the determined unit cost (65.45 €2017). The terminal 2020/2021 actual unit cost was 423.19 €2017, +2.1% higher than the determined unit cost (414.64 €2017).

• The en route 2021 actual service units (2,870K) were -1.0% lower than determined (2,898K).

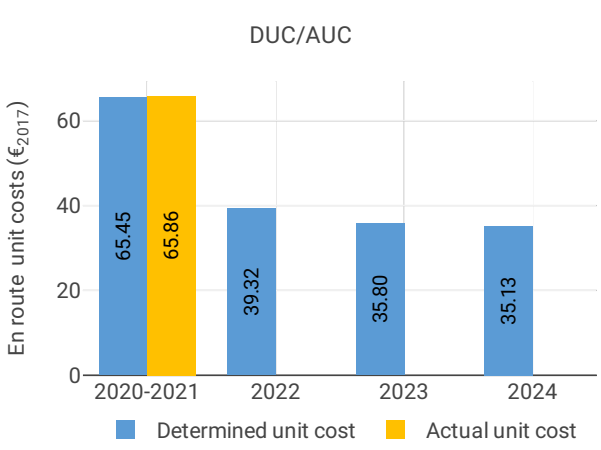
• In 2021, Romania increased total costs by +0.2 M€2017 (+0.1%) compared to determined. Other operating costs decreased significantly by -5.4 M€2017 (-20%) mainly due to a delay in flight validation services. This is offset by an increase in staff costs of +4.9 M€2017 (+4.0%), which increased due to a higher than planned defined benefits provision for pensions.

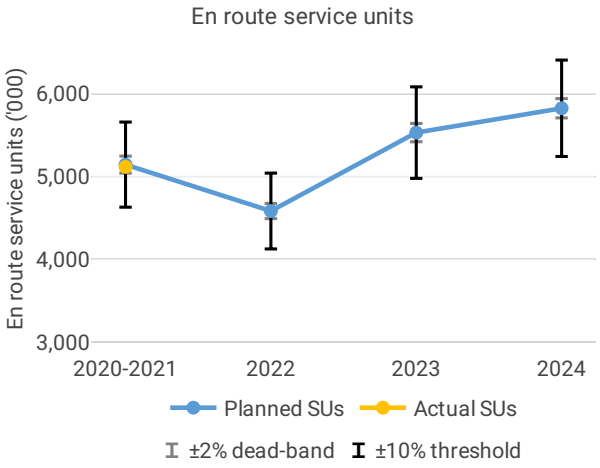
• ROMATSA spent 19.0 M€2017 in 2021 related to costs of investments, +1.9% more than determined (18.7 M€2017).

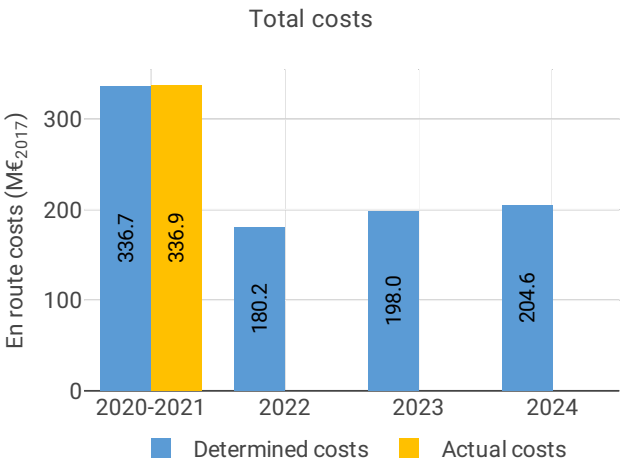
• The en route actual unit cost incurred by users in 2020/2021 was 67.34€, while the terminal actual unit cost incurred by users was 438.35€.

5.2 En route charging zone

5.2.1 Unit cost (KPI#1)

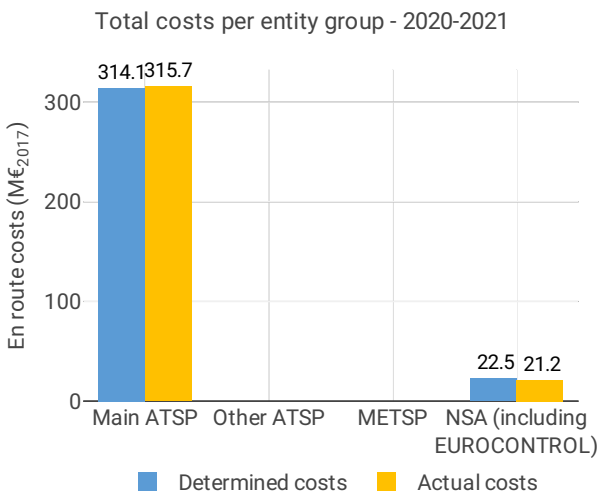


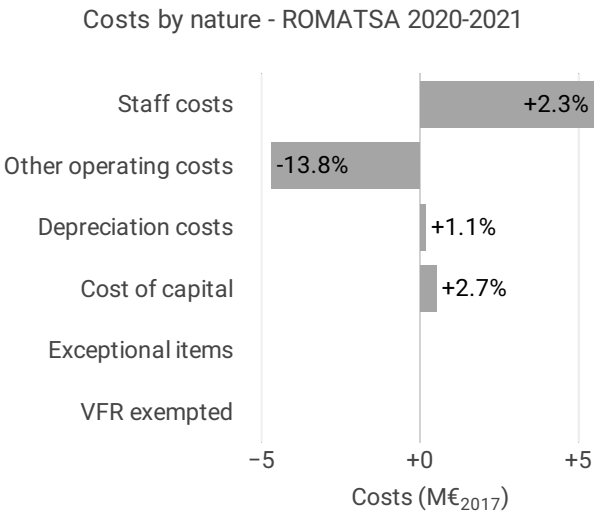




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	373	NA	NA	NA
Determined costs	370	219	249	265
Difference costs	2	NA	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	9.3%	4.0%	3.0%
Determined inflation index	NA	125.9	130.9	134.8
Actual inflation rate	NA	NA	NA	NA
Actual inflation index	NA	NA	NA	NA
Difference inflation index (p.p.)	NA	NA	NA	NA





Focus on unit cost

AUC vs. DUC

The AUC for the combined year 2020-2021 is slightly higher than the planned DUC (by +0.6%, or +1.86 RON2017, or +0.41€2017). This results from the combination of lower than planned TSUs (-0.5%) and higher than planned en route costs in real terms (by +0.1%, or +1.1 MRON2017, or +0.2 M€2017).

En route service units

The difference between actual and planned TSUs (-0.5%) falls within the ±2% dead band. Hence the resulting loss is borne by the ANSPs.

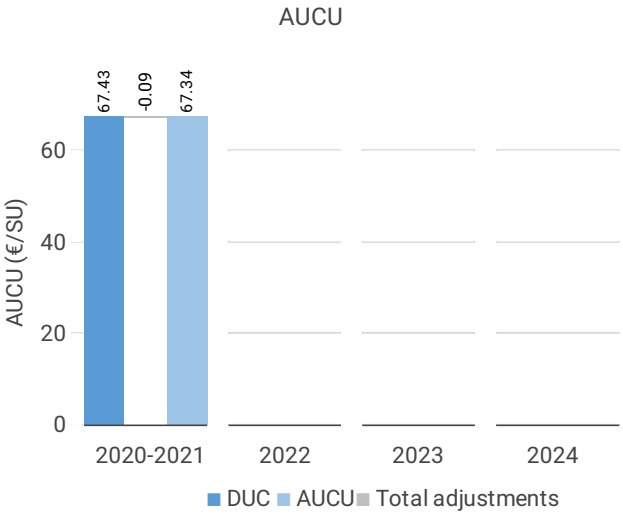
En route costs by entity

Actual real en route costs for 2020-2021 are +0.1% (+1.1 MRON2017, or +0.2 M€2017) higher than planned. This result is driven by the main ANSP, Romatsa (+0.5%, or +1.5 M€2017), while the NSA/EUROCONTROL costs were lower than planned (-5.7%, or -1.3 M€2017).

En route costs for the main ANSP at charging zone level

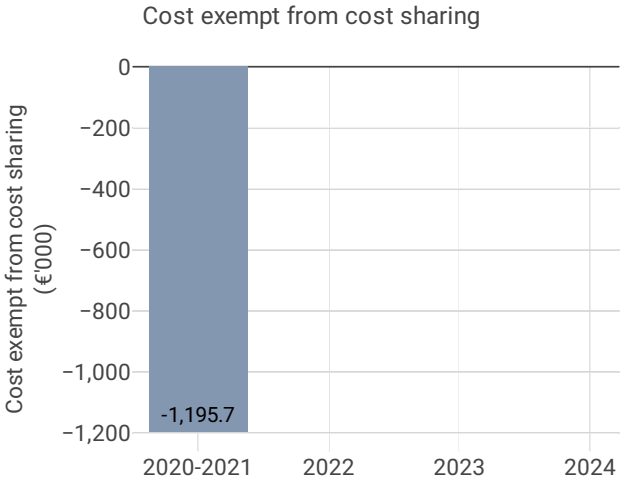
Overall, the en route costs in real terms for Romatsa in 2020-2021 were in line with the determined costs from the performance plan (+0.5%, or +1.5 M€2017 higher). This results from opposite variations:
- higher staff costs (+2.3%), “due to higher than planned pensions costs related to the defined benefits provision. These have been partly offset by cost restraining measures applied for both 2020-2021”.
- lower other operating costs (-13.8%), “due mainly to a delay in flight validation services for the 15 DMEs installed and cost restraining measures applied to conserve cash-flow.”
- slightly higher depreciation (+1.1%), “due to an accounting error in forecasting”, and
- higher cost of capital (+2.7%).

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



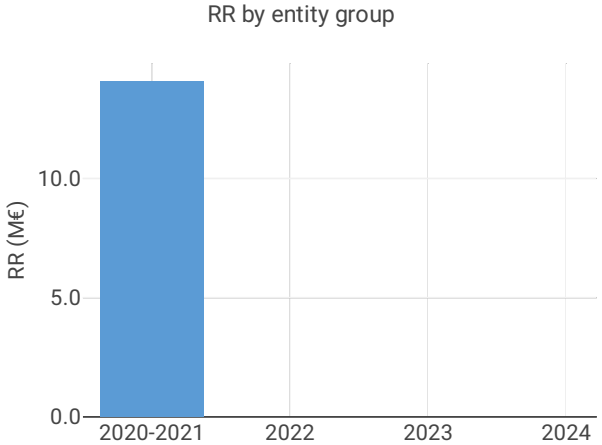
AUCU components (€/SU) – 2020-2021

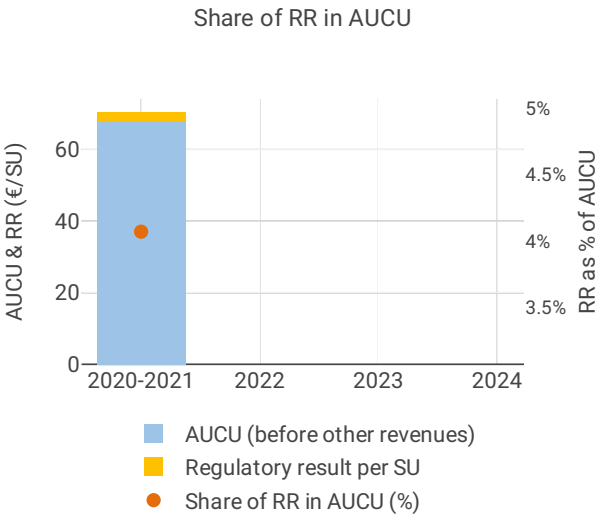
Components of the AUCU in 2020-2021	€/SU
DUC	**67.43**
Inflation adjustment	0.38
Cost exempt from cost-sharing	-0.23
Traffic risk sharing adjustment	0.00
Traffic adj. (costs not TRS)	0.04
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-0.28
Application of lower unit rate	0.00
Total adjustments	-0.09
AUCU	**67.34**
AUCU vs. DUC	**-0.1%**

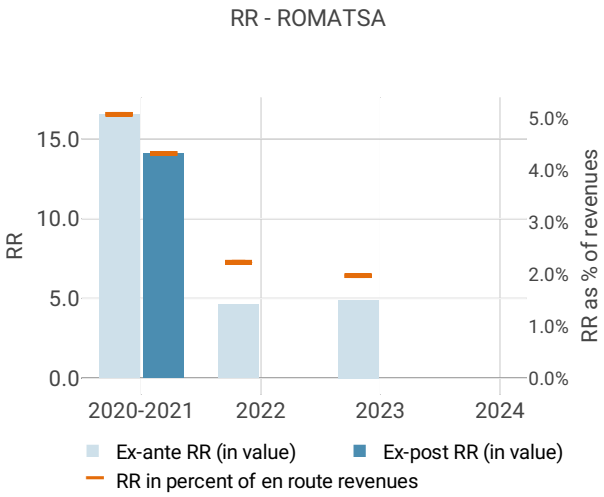


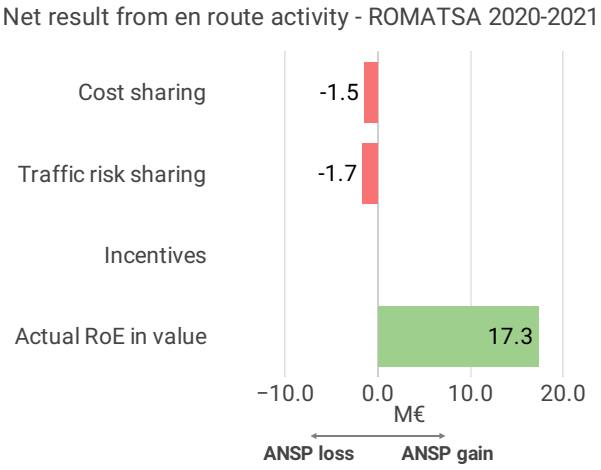
Cost exempt from cost sharing by item - 2020-2021	€'000	€/SU
New and existing investments	0.0	0.00
Competent authorities and qualified entities costs	-666.2	-0.13
Eurocontrol costs	-518.9	-0.10
Pension costs	0.0	0.00
Interest on loans	-10.6	0.00
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-1,195.7**	**-0.23**

5.2.3 Regulatory result (RR)







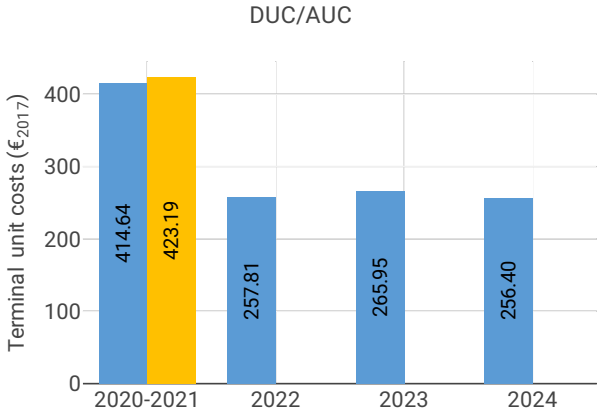


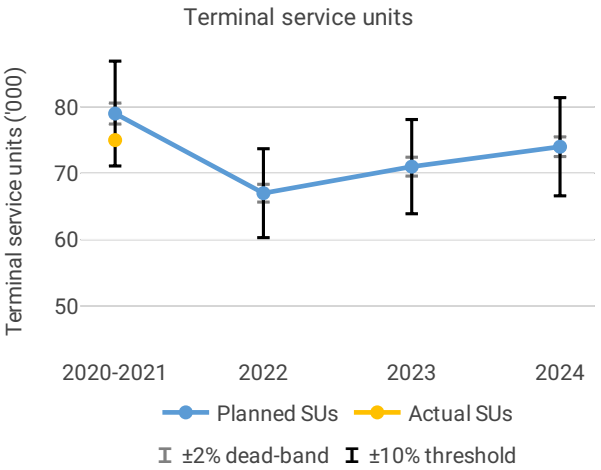
Focus on regulatory result

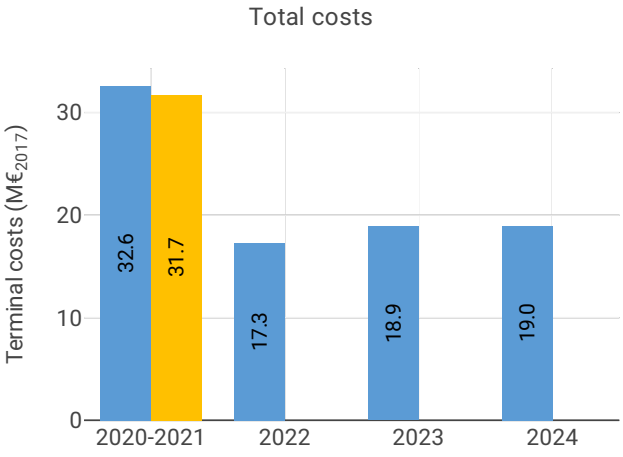
Romatsa net loss on en route activity in the Romania charging zone in the combined year 2020-2021
Romatsa incurred a net loss of -15.8 MRON, as a combination of a loss of -7.5 MRON arising from the cost sharing mechanism and a loss of -8.3 MRON arising from the traffic risk sharing mechanism.
Romatsa overall regulatory results (RR) for the en route activity
Ex-post, the overall RR taking into account the net loss from the en route activity mentioned above (-15.8 MRON) and the actual RoE (84.3 MRON) amounts to +68.5 MRON (4.3% of the en route revenues). The resulting ex-post rate of return on equity is 8.3%, which is lower than the 10.1% planned in the PP.

5.3 Terminal charging zone

5.3.1 Unit cost (KPI#1)

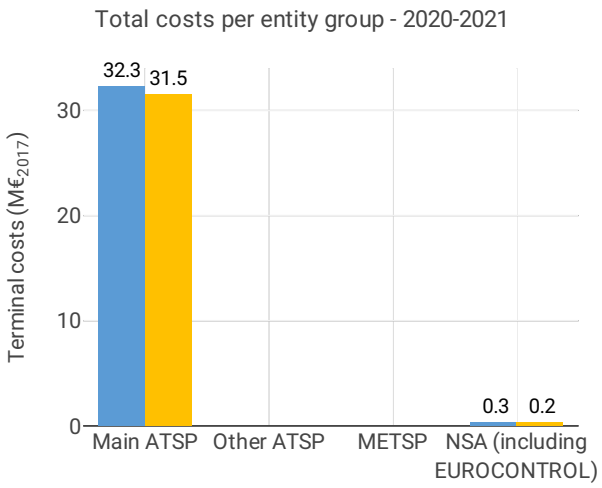


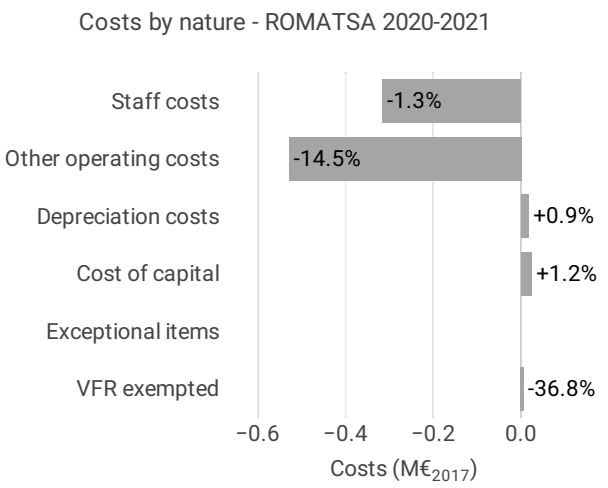




Actual and determined data

Total costs - nominal (M€)	2020-2021	2022	2023	2024
Actual costs	35	NA	NA	NA
Determined costs	36	21	24	25
Difference costs	-1	NA	NA	NA
Inflation assumptions	**2020-2021**	**2022**	**2023**	**2024**
Determined inflation rate	NA	9.3%	4.0%	3.0%
Determined inflation index	NA	125.9	130.9	134.8
Actual inflation rate	NA	NA	NA	NA
Actual inflation index	NA	NA	NA	NA
Difference inflation index (p.p.)	NA	NA	NA	NA





Focus on unit cost

AUC vs. DUC

The AUC for the combined year 2020-2021 is higher than the planned DUC (by +2.1%, or +39.05RON2017 or 8.55€2017). This is due to lower than planned TNSUs (-4.6%) and lower than planned terminal costs in real terms (by -2.6%, or -3.9 MRON2017 or -0.9M€2017).

Terminal service units

The difference between actual and planned TNSUs (-4.6%) falls between the -2% dead band and the -10% threshold. Hence the resulting loss is shared between the ANSP and the airspace users.

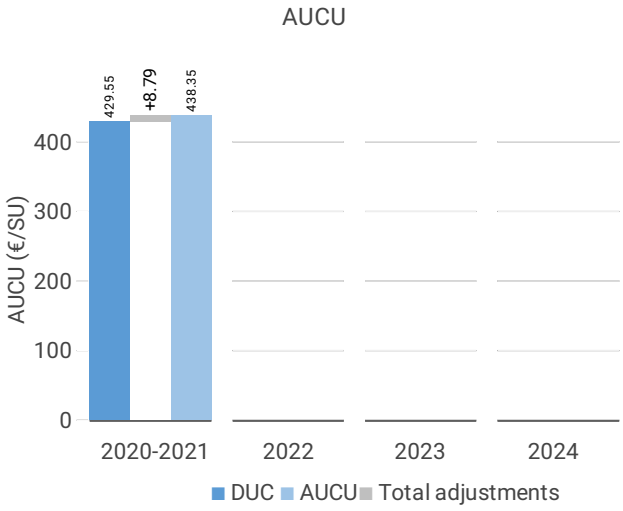
Terminal costs by entity

Actual real terminal costs for 2020-2021 are -2.6% (-0.9 M€2017) lower than planned. This result is driven by the main ANSP, Romatsa (-2.5%, or -0.8 M€2017) and the NSA costs (-20.8%, or -0.1 M€2017).

Terminal costs for the main ANSP at charging zone level

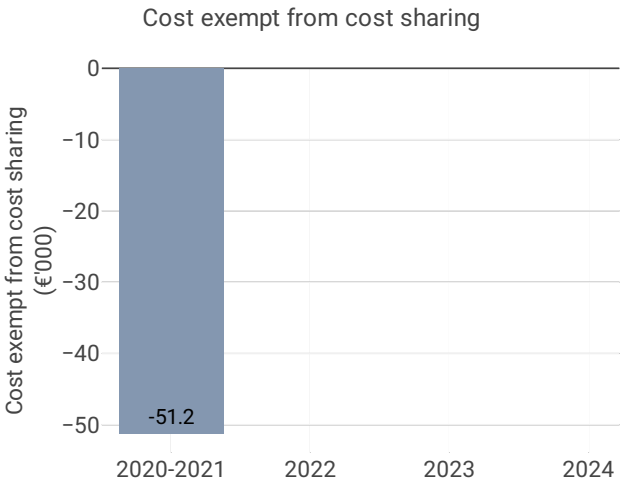
Overall, the terminal costs in real terms for Romatsa in 2020-2021 were lower than the determined costs from the performance plan (by -2.5%, or -0.8 M€2017 lower). This results from:
- lower staff costs (-1.3%), “due to cost restraining measures applied for both 2020-2021, offsetting higher than planned pensions costs related to the defined benefits provision”.
- lower other operating costs (-14.5%), “due mainly to a delay in the contracts for procedure design and flight validations and cost restraining measures applied to conserve cash-flow.”
- slightly higher depreciation (+0.9%), “due to an accounting error in forecasting” and
- higher cost of capital (+1.2%).

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



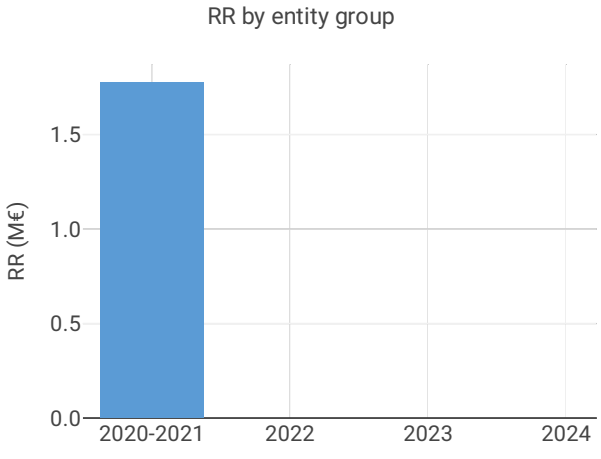
AUCU components (€/SU) – 2020-2021

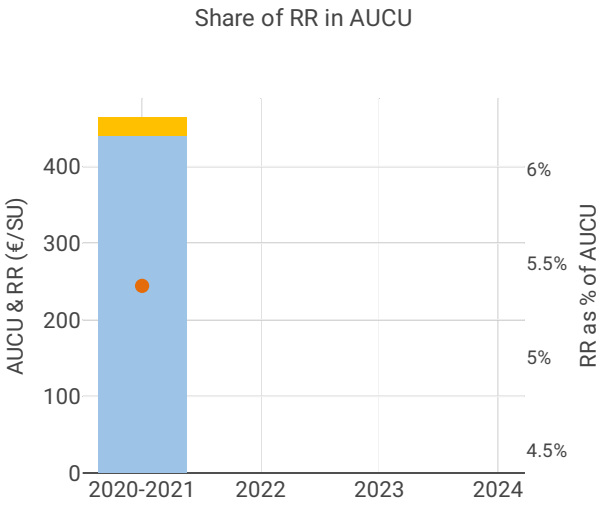
Components of the AUCU in 2020-2021	€/SU
DUC	**429.55**
Inflation adjustment	2.81
Cost exempt from cost-sharing	-0.68
Traffic risk sharing adjustment	7.60
Traffic adj. (costs not TRS)	1.24
Finantial incentives	0.00
Modulation of charges	0.00
Cross-financing	0.00
Other revenues	-2.18
Application of lower unit rate	0.00
Total adjustments	8.79
AUCU	**438.35**
AUCU vs. DUC	**+2.0%**

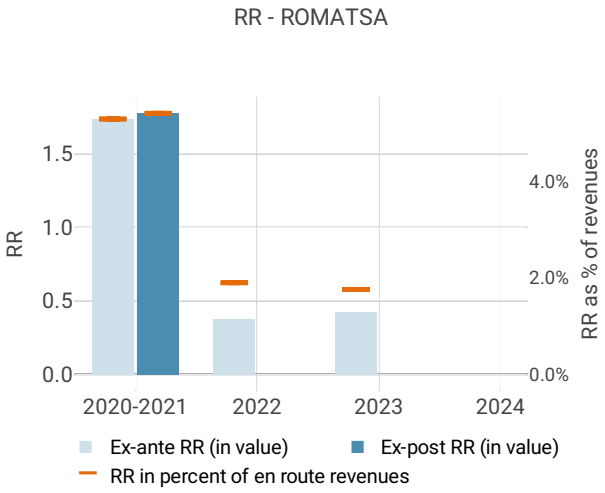


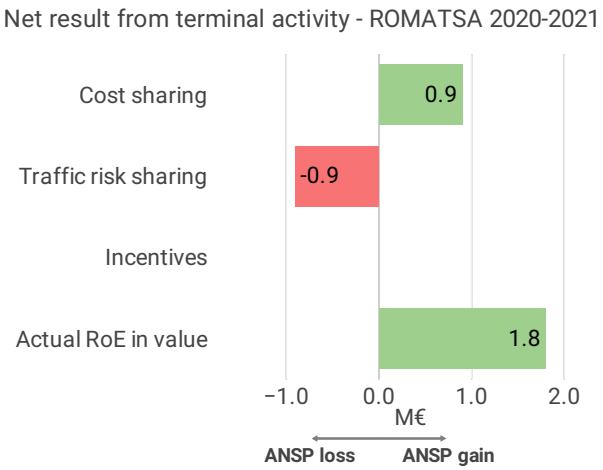
Cost exempt from cost sharing by item - 2020-2021	€'000	€/SU
New and existing investments	0.0	0.00
Competent authorities and qualified entities costs	-49.7	-0.66
Eurocontrol costs	0.0	0.00
Pension costs	0.0	0.00
Interest on loans	-1.5	-0.02
Changes in law	0.0	0.00
Total cost exempt from cost risk sharing	**-51.2**	**-0.68**

5.3.3 Regulatory result (RR)









Focus on regulatory result

Romatsa net loss on terminal activity in the Romania charging zone in the combined year 2020-2021
Romatsa incurred a net loss of -0.1 MRON, as a combination of a gain of +4.2 MRON arising from the cost sharing mechanism and a loss of -4.3 MRON arising from the traffic risk sharing mechanism.
Romatsa overall regulatory results (RR) for the terminal activity
Ex-post, the overall RR taking into account the net loss from the terminal activity mentioned above (-0.1 MRON) and the actual RoE (+8.7 MRON) amounts to +8.7 MRON (5.4% of the en route revenues). The resulting ex-post rate of return on equity is 10.1%, which is the same as planned in the PP.