

Performance Review Body Monitoring Report 2022

Annex I – Member States’ factsheets

The 2022 monitoring consists of five reports:

1. PRB Monitoring Report 2022
2. **Annex I – Member States’ factsheets**
3. Annex II – Member States’ detailed analysis for experts
4. Annex III – Safety report
5. Annex IV – Investments report

October 2023

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TABLE OF CONTENTS

1	INTRODUCTION	2
1.1	<i>Important notes</i>	2
2	MEMBER STATES' FACTSHEETS	8
	<i>Austria</i>	8
	<i>Belgium and Luxembourg</i>	11
	<i>Bulgaria</i>	15
	<i>Croatia</i>	18
	<i>Cyprus</i>	21
	<i>Czech Republic</i>	24
	<i>Denmark</i>	28
	<i>Estonia</i>	30
	<i>Finland</i>	33
	<i>France</i>	36
	<i>Germany</i>	40
	<i>Greece</i>	43
	<i>Hungary</i>	46
	<i>Ireland</i>	49
	<i>Italy</i>	52
	<i>Latvia</i>	56
	<i>Lithuania</i>	59
	<i>Malta</i>	62
	<i>The Netherlands</i>	65
	<i>Norway</i>	68
	<i>Poland</i>	71
	<i>Portugal</i>	75
	<i>Romania</i>	78
	<i>Slovakia</i>	81
	<i>Slovenia</i>	84
	<i>Spain</i>	87
	<i>Sweden</i>	91
	<i>Switzerland</i>	94

1 INTRODUCTION

- 1 The PRB Monitoring Report 2022 examines the performance of air navigation services (ANS) in the Single European Sky (SES). The SES area comprises EU Member States, Norway, and Switzerland (hereafter defined as Member States).
- 2 The PRB Monitoring Report 2022 is complemented by four annexes to the Union-wide report with a detailed analysis of performance at local levels:
 - Annex I – Member States’ factsheets (this document);
 - Annex II – Member States’ detailed analysis for experts (produced by Eurocontrol);
 - Annex III – Safety report (produced by EASA); and
 - Annex IV – Investments report (produced by the PRB).
- 3 This “Annex I – Member States’ factsheets” provides a snapshot of the 2022 (and combined years 2020-2021 for cost efficiency) ANS performance in each Member State through factsheets that summarise key data. The PRB also provides comments on Member States’ performance highlighting any local issues that need to be addressed.
- 4 The factsheets comprise three pages, the first page provides the PRB’s comments on the observed performance in each Member State per key performance area (KPA) based on the charts shown on the second and third pages.
- 5 The charts shown on the second and third pages are split into four sections, one for each KPA and each one has a caption describing an important feature of the data shown.
- 6 Table 1 (page 4) presents an example of each graph that is shown in the factsheets with a description of how the reader can interpret the information it is conveying.

1.1 Important notes

Safety

- 7 For the third reference period (RP3), the European Commission set targets on the effectiveness of safety management (EoS_M) for 2024 only. The

PRB therefore compares performance in 2022 to the targets set for 2024, which indicates which Member States have already achieved the RP3 safety targets or which Member States probably need to improve their performance to meet the 2024 target.¹

- 8 The data shown by the PRB is on a five-year rolling basis for the purposes of performance comparison, i.e. data is shown for key performance and performance indicators between 2018 and 2022. This means that RP2 (2018-2019) data is shown alongside RP3 (2020-2022) data. The next paragraphs outline the differences between RP2 and RP3 data shown for the safety KPA.
- 9 In RP3, the levels of safety maturity were rescaled. In RP2, they ranged between level A and E (with level E as the best performance), while the levels now range between A and D (with level D as the best performance). The reader should not assume that a Member State achieving level E in 2019 and level D in 2020 onwards degraded their safety management performance.
- 10 Comparison of Runway incursion (RI) and separation minima infringement (SMI) occurrence rates between RP3 and RP2 should be viewed with caution. In RP3, only occurrences with ‘safety impacts’ are reported, as opposed to ‘all occurrences’ which were reported in RP2. It should also be noted that rates at the local level are sensitive to the actual number of occurrences and the number of movements or flight hours, hence a difference of one occurrence in 2022 may result in a relatively higher or lower rate without necessarily implying improved or degraded safety performance.

Environment

- 11 In RP2 the Union-wide environment target was broken down into FAB level reference values (as opposed to Member State level values in RP3), hence, this report shows FAB level reference values between 2018 and 2019.
- 12 Local RP3 performance targets were not adopted prior to the pandemic and, therefore, the national horizontal flight efficiency indicator (KEA)

¹ EoS_M targets are set for 2024 only. When Member States are said to have achieved or not achieved the RP3 safety targets, this refers to the 2024 target levels.

reference values are shown for the year 2020. For 2021, actual performance is compared to the environment targets within the RP3 performance plans revised in 2021.²

- 13 For the terminal performance indicators, the PRB only included the data for regulated airports that reported this information.³

Capacity

- 14 In RP2, delays were measured based on flight information regions (FIRs), while, in RP3 they are measured based on the air navigation service providers' (ANSPs) area of responsibility. Therefore, the performance between 2018-2019 and 2020 onwards is not directly comparable as the PRB shows the delay data at the FIR level between 2018 and 2019 and the ANSP boundaries from 2020 onwards. All delay figures shown in the graphs are after post-operational adjustments and, where applicable, are also adjusted for delays due to exceptional events.
- 15 In RP2, capacity targets were set at FAB level and optionally broken down into national targets. The PRB shows the FAB level targets between 2018 and 2019 unless national targets were set. For 2020, since the assessment of 2019 draft performance plans were not finalised, the target shown is the local (FAB or ANSP) breakdown value. For

2021, capacity targets from the revised 2021 RP3 performance plans are shown.

Cost-efficiency

- 16 The en route and terminal cost-efficiency performance is monitored by one KPI: The determined unit cost. The KPI is calculated at charging zone level per year, as the ratio between the determined cost and the determined traffic.
- 17 The Regulation includes a new indicator for monitoring: The actual unit cost incurred by users (AUCU).⁴ The AUCU is calculated separately for en route and terminal as the sum of the determined unit cost and the adjustments stemming from the year divided by the actual traffic. The AUCU is presented in nominal euros.
- 18 As per the exceptional measures Regulation, the comparison of determined unit cost and actual unit cost, and the AUCU⁵, are performed for the combined year 2020/2021.

² The performance plan of Belgium has not yet been assessed as consistent by the Commission.

³ In some instances, additional airport data for 2020 and 2021 has been made available since the previous edition of this monitoring report, leading to minor discrepancies with 2020 and 2021 values published in October 2022.

⁴ Commission Implementing Regulation (EU) 2019/317 of 11 February 2019 laying down a performance and charging scheme in the single European sky and repealing Implementing Regulations (EU) No 390/2013 and (EU) No 391/2013.

⁵ Commission Implementing Regulation (EU) 2020/1627.

KPA	Chart	Description
Safety	<p>Main ANSP's effectiveness of safety management (EoSM) by year</p>	<p>Shows the minimum level of EoSM achieved by the Member State's main ANSP.⁶ Performance in each safety management objective is shown. The dotted red and yellow lines show 2024 (RP3) targets for management objectives.</p>
Safety	<p>Rate of separation minimal infringement (SMI) by year</p>	<p>Shows the rates of separation minima infringement (SMI) that occurred in the Member State. The black dots show the Union-wide average rate of occurrences.</p>
Safety	<p>Rate of runway incursions (RIs) by year</p>	<p>Shows the rate of occurrences of runway incursions (RIs) for the regulated airports which have reported data in the relevant Member State. The black dots show the Union-wide average rate of reported occurrences.</p>
Safety	<p>Use of automated safety data recording systems</p> <p style="text-align: center;"> For RIs For SMIs </p> <p style="text-align: center;"> ✗ ✓ </p>	<p>Shows if the Member State used automated safety data recording systems and for which occurrence type it is operational. A red cross indicates the Member State did not use automated systems in 2022 while a green tick indicates that it did.</p>

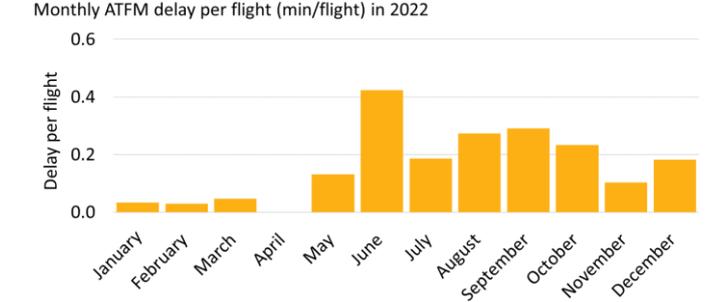
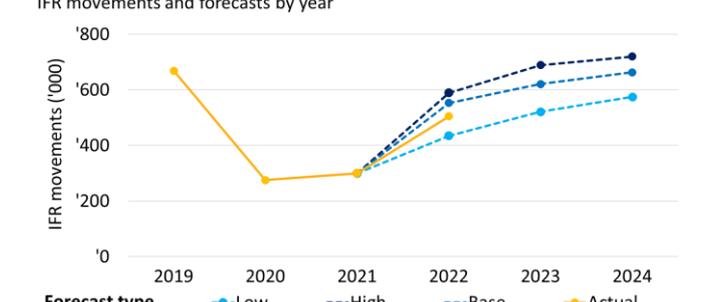
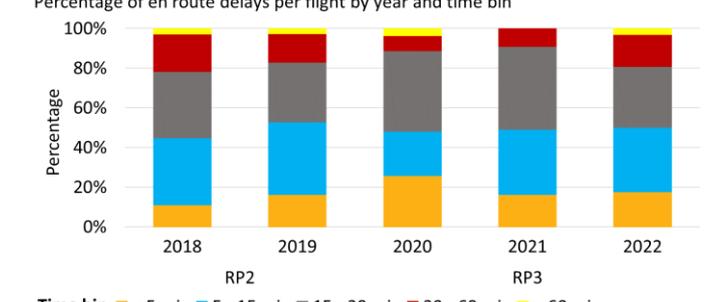
⁶ The EoSM scores are provided according to the latest scores held by EASA and may be different to those stated in previous monitoring reports. The reader should note the section 1.1, paragraph 9 concerning the safety KPA when interpreting this graph.

KPA	Chart	Description																								
Environment	<p>KEA performance</p> <table border="1"> <thead> <tr> <th>Year</th> <th>KEA (%)</th> <th>Reference value (%)</th> </tr> </thead> <tbody> <tr> <td>2018</td> <td>2.18%</td> <td>1.85%</td> </tr> <tr> <td>2019</td> <td>2.55%</td> <td>1.81%</td> </tr> <tr> <td>2020</td> <td>2.22%</td> <td>2.10%</td> </tr> <tr> <td>2021</td> <td>2.29%</td> <td>2.15%</td> </tr> <tr> <td>2022</td> <td>4.04%</td> <td>2.13%</td> </tr> </tbody> </table>	Year	KEA (%)	Reference value (%)	2018	2.18%	1.85%	2019	2.55%	1.81%	2020	2.22%	2.10%	2021	2.29%	2.15%	2022	4.04%	2.13%	<p>Shows the achieved horizontal flight inefficiency (KEA) and the FAB reference value for 2018 and 2019. For 2020 onwards, the reference value is at a national level.⁷</p>						
Year	KEA (%)	Reference value (%)																								
2018	2.18%	1.85%																								
2019	2.55%	1.81%																								
2020	2.22%	2.10%																								
2021	2.29%	2.15%																								
2022	4.04%	2.13%																								
Environment	<p>KEP and SCR performance</p> <table border="1"> <thead> <tr> <th>Year</th> <th>KEP (%)</th> <th>SCR (%)</th> </tr> </thead> <tbody> <tr> <td>2018</td> <td>7.67%</td> <td>7.24%</td> </tr> <tr> <td>2019</td> <td>7.61%</td> <td>7.30%</td> </tr> <tr> <td>2020</td> <td>7.58%</td> <td>7.08%</td> </tr> <tr> <td>2021</td> <td>7.14%</td> <td>6.74%</td> </tr> <tr> <td>2022</td> <td>7.79%</td> <td>7.32%</td> </tr> </tbody> </table>	Year	KEP (%)	SCR (%)	2018	7.67%	7.24%	2019	7.61%	7.30%	2020	7.58%	7.08%	2021	7.14%	6.74%	2022	7.79%	7.32%	<p>Shows the planned horizontal flight inefficiency (KEP) and shortest constrained route (SCR).*</p>						
Year	KEP (%)	SCR (%)																								
2018	7.67%	7.24%																								
2019	7.61%	7.30%																								
2020	7.58%	7.08%																								
2021	7.14%	6.74%																								
2022	7.79%	7.32%																								
Environment	<p>Share of CDO flights by year</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Share of flights (%)</th> </tr> </thead> <tbody> <tr> <td>2018</td> <td>30.50%</td> </tr> <tr> <td>2019</td> <td>26.50%</td> </tr> <tr> <td>2020</td> <td>33.80%</td> </tr> <tr> <td>2021</td> <td>31.90%</td> </tr> <tr> <td>2022</td> <td>28.60%</td> </tr> </tbody> </table>	Year	Share of flights (%)	2018	30.50%	2019	26.50%	2020	33.80%	2021	31.90%	2022	28.60%	<p>Shows the share of flights that conducted full continuous descent operations (CDO) – as defined by the Eurocontrol task-force on vertical flight efficiency – at the Member States’ regulated airports from 2018 to 2022.⁸</p>												
Year	Share of flights (%)																									
2018	30.50%																									
2019	26.50%																									
2020	33.80%																									
2021	31.90%																									
2022	28.60%																									
Environment	<p>Additional taxi out time (AXOT) and holding time (ASMA) by year</p> <table border="1"> <thead> <tr> <th>Year</th> <th>AXOT (min/flight)</th> <th>ASMA (min/flight)</th> <th>Total (min/flight)</th> </tr> </thead> <tbody> <tr> <td>2018</td> <td>4.56</td> <td>1.52</td> <td>6.08</td> </tr> <tr> <td>2019</td> <td>5.04</td> <td>1.97</td> <td>7.01</td> </tr> <tr> <td>2020</td> <td>2.36</td> <td>0.95</td> <td>3.31</td> </tr> <tr> <td>2021</td> <td>2.36</td> <td>0.95</td> <td>3.31</td> </tr> <tr> <td>2022</td> <td>3.41</td> <td>1.32</td> <td>4.73</td> </tr> </tbody> </table>	Year	AXOT (min/flight)	ASMA (min/flight)	Total (min/flight)	2018	4.56	1.52	6.08	2019	5.04	1.97	7.01	2020	2.36	0.95	3.31	2021	2.36	0.95	3.31	2022	3.41	1.32	4.73	<p>Shows the average additional time to taxi-out and additional holding time spent by airspace users at the Member States’ regulated airports from 2018 to 2022.*</p>
Year	AXOT (min/flight)	ASMA (min/flight)	Total (min/flight)																							
2018	4.56	1.52	6.08																							
2019	5.04	1.97	7.01																							
2020	2.36	0.95	3.31																							
2021	2.36	0.95	3.31																							
2022	3.41	1.32	4.73																							

⁷ Between 2018 and 2019 the FAB reference values are shown as Member States submitted FAB-level performance plans for RP2.

⁸ European CCO/CDO task force’s definition of CCO/CDO can be found [here](#).

* Note that the scope of regulated airports in this Annex I includes those as per Article 1(3) of Commission Implementing Regulation (EU) 2019/317 (IFR movements ≥ 80 000) and those as per Article 1(4) (added on a voluntary basis). Annex II only accounts for airports included as per Article 1(3), hence discrepancies between values in the two annexes can be explained by this differing scope.

KPA	Chart	Description																																				
Capacity	 <p>ATFM delay per flight (min/flight)</p> <table border="1"> <thead> <tr> <th>Year</th> <th>ATFM delay per flight (min/flight)</th> <th>Target (min/flight)</th> </tr> </thead> <tbody> <tr> <td>2018</td> <td>0.53</td> <td>0.60</td> </tr> <tr> <td>2019</td> <td>0.42</td> <td>0.50</td> </tr> <tr> <td>2020</td> <td>0.02</td> <td>0.34</td> </tr> <tr> <td>2021</td> <td>0.43</td> <td>0.32</td> </tr> <tr> <td>2022</td> <td>0.15</td> <td>0.14</td> </tr> </tbody> </table>	Year	ATFM delay per flight (min/flight)	Target (min/flight)	2018	0.53	0.60	2019	0.42	0.50	2020	0.02	0.34	2021	0.43	0.32	2022	0.15	0.14	<p>Shows the average yearly en route air traffic flow management (ATFM) delay after post-ops adjustments incurred per flight by airspace users flying in the Member State's airspace between 2018 and 2022.⁹ In 2018 and 2019, the national or FAB capacity targets are shown with red lines, for 2020 onwards the red line is the local (ANSP) breakdown value.</p>																		
Year	ATFM delay per flight (min/flight)	Target (min/flight)																																				
2018	0.53	0.60																																				
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Capacity	 <p>Monthly ATFM delay per flight (min/flight) in 2022</p> <table border="1"> <thead> <tr> <th>Month</th> <th>Delay per flight (min/flight)</th> </tr> </thead> <tbody> <tr><td>January</td><td>0.05</td></tr> <tr><td>February</td><td>0.05</td></tr> <tr><td>March</td><td>0.05</td></tr> <tr><td>April</td><td>0.05</td></tr> <tr><td>May</td><td>0.15</td></tr> <tr><td>June</td><td>0.42</td></tr> <tr><td>July</td><td>0.20</td></tr> <tr><td>August</td><td>0.28</td></tr> <tr><td>September</td><td>0.30</td></tr> <tr><td>October</td><td>0.25</td></tr> <tr><td>November</td><td>0.10</td></tr> <tr><td>December</td><td>0.18</td></tr> </tbody> </table>	Month	Delay per flight (min/flight)	January	0.05	February	0.05	March	0.05	April	0.05	May	0.15	June	0.42	July	0.20	August	0.28	September	0.30	October	0.25	November	0.10	December	0.18	<p>Shows the average monthly en route ATFM delay incurred per flight by airspace users flying in the Member State's airspace in each month of 2022.</p>										
Month	Delay per flight (min/flight)																																					
January	0.05																																					
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December	0.18																																					
Capacity	 <p>IFR movements and forecasts by year</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Actual (000)</th> <th>Forecast type</th> </tr> </thead> <tbody> <tr> <td>2019</td> <td>~680</td> <td>Actual</td> </tr> <tr> <td>2020</td> <td>~280</td> <td>Actual</td> </tr> <tr> <td>2021</td> <td>~300</td> <td>Actual</td> </tr> <tr> <td>2022</td> <td>~500</td> <td>Forecast (Base)</td> </tr> <tr> <td>2023</td> <td>~600</td> <td>Forecast (Base)</td> </tr> <tr> <td>2024</td> <td>~650</td> <td>Forecast (Base)</td> </tr> </tbody> </table>	Year	Actual (000)	Forecast type	2019	~680	Actual	2020	~280	Actual	2021	~300	Actual	2022	~500	Forecast (Base)	2023	~600	Forecast (Base)	2024	~650	Forecast (Base)	<p>Shows the actual number of instrument flight rules (IFR) movements managed by the Member State and the high, base, and low forecasts from either the STATFOR October 2021 forecast for 2021 onwards or the STATFOR June 2022 forecast for 2022 onwards.¹⁰</p>															
Year	Actual (000)	Forecast type																																				
2019	~680	Actual																																				
2020	~280	Actual																																				
2021	~300	Actual																																				
2022	~500	Forecast (Base)																																				
2023	~600	Forecast (Base)																																				
2024	~650	Forecast (Base)																																				
Capacity	 <p>Percentage of en route delays per flight by year and time bin</p> <table border="1"> <thead> <tr> <th>Year</th> <th>< 5 min</th> <th>5 - 15 min</th> <th>15 - 30 min</th> <th>30 - 60 min</th> <th>> 60 min</th> </tr> </thead> <tbody> <tr> <td>2018</td> <td>~10%</td> <td>~30%</td> <td>~30%</td> <td>~20%</td> <td>~10%</td> </tr> <tr> <td>2019</td> <td>~15%</td> <td>~35%</td> <td>~25%</td> <td>~15%</td> <td>~10%</td> </tr> <tr> <td>2020</td> <td>~25%</td> <td>~25%</td> <td>~40%</td> <td>~5%</td> <td>~5%</td> </tr> <tr> <td>2021</td> <td>~15%</td> <td>~30%</td> <td>~40%</td> <td>~10%</td> <td>~5%</td> </tr> <tr> <td>2022</td> <td>~15%</td> <td>~30%</td> <td>~35%</td> <td>~15%</td> <td>~5%</td> </tr> </tbody> </table>	Year	< 5 min	5 - 15 min	15 - 30 min	30 - 60 min	> 60 min	2018	~10%	~30%	~30%	~20%	~10%	2019	~15%	~35%	~25%	~15%	~10%	2020	~25%	~25%	~40%	~5%	~5%	2021	~15%	~30%	~40%	~10%	~5%	2022	~15%	~30%	~35%	~15%	~5%	<p>Shows the share of flights that were delayed by time category from 2018 to 2022.</p>
Year	< 5 min	5 - 15 min	15 - 30 min	30 - 60 min	> 60 min																																	
2018	~10%	~30%	~30%	~20%	~10%																																	
2019	~15%	~35%	~25%	~15%	~10%																																	
2020	~25%	~25%	~40%	~5%	~5%																																	
2021	~15%	~30%	~40%	~10%	~5%																																	
2022	~15%	~30%	~35%	~15%	~5%																																	

⁹ Data between 2018-2019 is based on FIR (national) boundaries while 2020 onwards data is based on AUA (ANSP area of responsibility) boundaries. The reader should note the section 1.2, paragraph 11 and 12 concerning the capacity KPA when interpreting this graph.

¹⁰ This Annex is aligned with the forecasts used at the time of preparing the Performance Plans. Eight Member States have used the STATFOR June 2022 forecast (Belgium, Cyprus, Greece, Lithuania, Latvia, Malta, Romania, Sweden). The rest of the Member States use the STATFOR October 2021 forecast.

KPA	Chart	Description																
Cost-efficiency	<p>En route actual unit cost and determined unit cost by year</p> <table border="1"> <caption>En route unit costs (€2017)</caption> <thead> <tr> <th>Year</th> <th>Determined Unit Cost</th> <th>Actual Unit Cost</th> </tr> </thead> <tbody> <tr> <td>2020/2021</td> <td>189.52</td> <td>183.76</td> </tr> <tr> <td>2022</td> <td>104.47</td> <td>98.91</td> </tr> </tbody> </table>	Year	Determined Unit Cost	Actual Unit Cost	2020/2021	189.52	183.76	2022	104.47	98.91	Shows the actual en route unit cost and determined unit cost at charging zone level for the years 2020/2021 and 2022.							
Year	Determined Unit Cost	Actual Unit Cost																
2020/2021	189.52	183.76																
2022	104.47	98.91																
Cost-efficiency	<p>Terminal actual unit cost and determined unit cost by year</p> <table border="1"> <caption>Terminal unit costs (€2017)</caption> <thead> <tr> <th>Year</th> <th>Determined Unit Cost</th> <th>Actual Unit Cost</th> </tr> </thead> <tbody> <tr> <td>2020/2021</td> <td>333.73</td> <td>344.18</td> </tr> <tr> <td>2022</td> <td>243.87</td> <td>247.01</td> </tr> </tbody> </table>	Year	Determined Unit Cost	Actual Unit Cost	2020/2021	333.73	344.18	2022	243.87	247.01	Shows the actual terminal unit cost and determined unit cost at charging zone level for the years 2020/2021 and 2022. ¹¹							
Year	Determined Unit Cost	Actual Unit Cost																
2020/2021	333.73	344.18																
2022	243.87	247.01																
Cost-efficiency	<p>% difference between 2022 actual costs and determined</p> <table border="1"> <caption>% difference between 2022 actual costs and determined</caption> <thead> <tr> <th>Category</th> <th>% Difference</th> </tr> </thead> <tbody> <tr> <td>Total costs</td> <td>-11.6%</td> </tr> <tr> <td>VFR exempted</td> <td>-38.3%</td> </tr> <tr> <td>Exceptional costs</td> <td>0.0%</td> </tr> <tr> <td>Cost of capital</td> <td>1.0%</td> </tr> <tr> <td>Depreciation costs</td> <td>-9.1%</td> </tr> <tr> <td>Other operating costs</td> <td>-20.1%</td> </tr> <tr> <td>Staff costs</td> <td>-10.1%</td> </tr> </tbody> </table>	Category	% Difference	Total costs	-11.6%	VFR exempted	-38.3%	Exceptional costs	0.0%	Cost of capital	1.0%	Depreciation costs	-9.1%	Other operating costs	-20.1%	Staff costs	-10.1%	Shows the comparison of the changes in actual costs across various cost categories in 2022 at charging zone level.
Category	% Difference																	
Total costs	-11.6%																	
VFR exempted	-38.3%																	
Exceptional costs	0.0%																	
Cost of capital	1.0%																	
Depreciation costs	-9.1%																	
Other operating costs	-20.1%																	
Staff costs	-10.1%																	
Cost-efficiency	<p>Costs related to investments by year</p> <table border="1"> <caption>Costs related to investments (M€2017)</caption> <thead> <tr> <th>Year</th> <th>Actual costs</th> <th>Determined costs</th> </tr> </thead> <tbody> <tr> <td>2020</td> <td>94.3</td> <td>94.3</td> </tr> <tr> <td>2021</td> <td>81.6</td> <td>93.3</td> </tr> <tr> <td>2022</td> <td>106.9</td> <td>100.4</td> </tr> </tbody> </table>	Year	Actual costs	Determined costs	2020	94.3	94.3	2021	81.6	93.3	2022	106.9	100.4	Shows the comparison between the determined and actual costs related to investments in the performance plan at main ANSP level from 2020 to 2022. ¹²				
Year	Actual costs	Determined costs																
2020	94.3	94.3																
2021	81.6	93.3																
2022	106.9	100.4																

Table 1 – Description of the various charts shown in the Member States factsheets organised per KPA.

¹¹ Multiple graphs are shown for Member States with multiple en route or terminal charging zones.

¹² The data labels in the graphs are displayed without decimals, minor inconsistencies between the data in the text and the graphs may appear due to rounding.

Comments from the Performance Review Body:

Safety:

- Austria (Austro Control) did not achieve the RP3 targets in any of the safety management objectives in 2022 and requires improvement in ten areas out of 28 by the end of RP3. This is in line with their performance plan.
- Austro Control developed an improvement plan including specific measures required to reach the expected maturity levels. These measures have been incorporated into the strategic planning of the organisation.
- The overall safety performance of the organisation remained stable, the rate of occurrences was comparable with previous years and remained below the Union-wide average.
- Austro Control could improve its safety management by implementing automated safety data recording systems.

Environment:

- Austria achieved a KEA performance of 2.09% compared to its target of 1.96% and did not contribute positively to the Union-wide target. KEA performance deteriorated by 0.22 percentage points in comparison to 2021.
- The NSA states that the target was missed mainly due to shifted traffic flows caused by the Russian war of aggression against Ukraine and a resulting increase in traffic, weather phenomena during summer and non-optimised trajectories.
- Both KEP and SCR deteriorated in comparison to 2021.
- Only one out of six Austrian airports that are regulated reported terminal environment data.
- The share of CDO flights decreased by 6.06% compared to 2021.
- During 2022, additional time in terminal airspace decreased from 0.95 to 0.82 min/flight, while additional taxi out time increased from 1.94 to 2.09 min/flight.

Capacity:

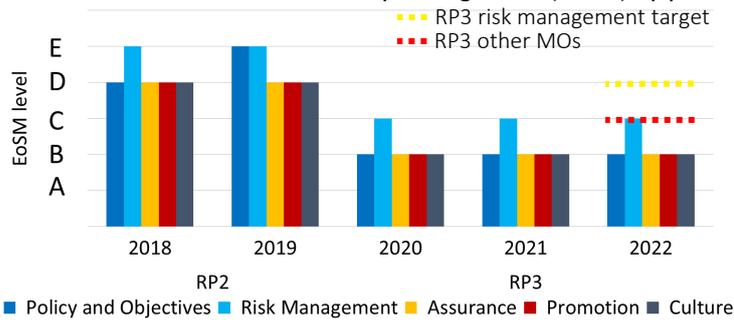
- Austria registered 0.10 minutes of average en route ATFM delay per flight during 2022 which has been adjusted to 0.07 during the post-ops adjustment process, thus achieving the local target value of 0.17.
- The average number of IFR movements was still 7% below 2019 levels in Austria in 2022.
- The number of ATCOs in OPS is planned to increase by 7% by the end of RP3., with the actual value being above the 2022 plan in Vienna ACC.

Cost-efficiency:

- The en route 2022 actual service units (3,248K) were 8.1% higher than the determined service units (3,004K).
- The en route 2022 actual total costs were 1.7M€₂₀₁₇ (-0.9%) lower than determined. The increase in staff costs (+3.5M€₂₀₁₇, or +2.8%) compared to determined was offset by decreases in all the other cost categories.
- The main decreases were attributable to depreciation costs (-2.0M€₂₀₁₇, or -9.1%) and cost of capital (-1.4M€₂₀₁₇, or -26%). The NSA noted that it is mainly due to delayed investments as a result of the prolonged COVID-19 situation.
- Austro Control spent 29M€₂₀₁₇ in 2022 related to costs of investments, 13% less than determined (33M€₂₀₁₇), due to delayed investment as a result of the prolonged COVID-19 situation.
- As for the previous monitoring year, the discrepancies regarding costs of investments were significant. The PRB invites the NSA to analyse the discrepancies, identify their reasons, and the Member State to take immediate, adequate, and proportionate action to ensure the implementation of the investment plans to avoid future capacity gaps.
- The en route 2022 actual unit cost of Austria was 56.91€₂₀₁₇, 8.3% lower than the determined unit cost (62.09€₂₀₁₇). The terminal 2022 actual unit cost was 267.42€₂₀₁₇, 20% higher than the determined unit cost (223.52€₂₀₁₇).
- The en route actual unit cost incurred by users in 2022 was 67.45€, while the terminal actual unit cost incurred by users was 301.37€.

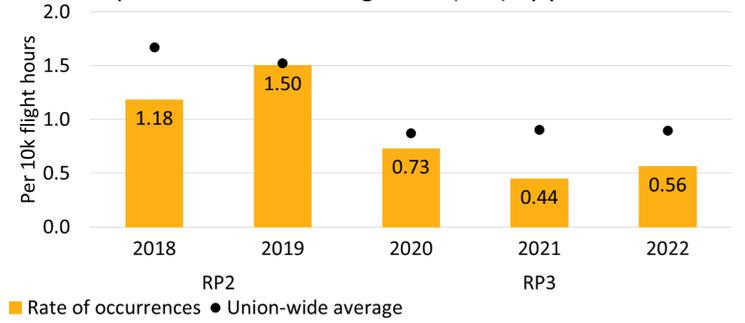
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



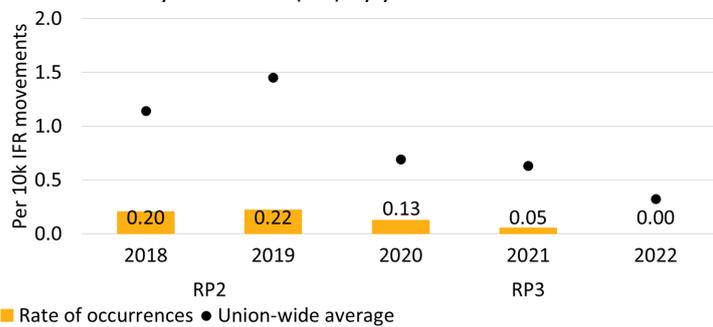
Austria (Austro Control) did not achieve the RP3 targets in any of the safety MOs in 2022.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour was at a comparable level to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



Austria did not record any RIs in 2022.

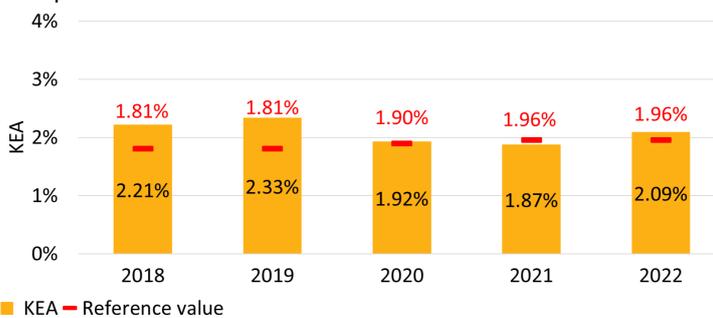
Use of automated safety data recording systems



Austria does not use automated safety data recording systems for RIs or for SMIs.

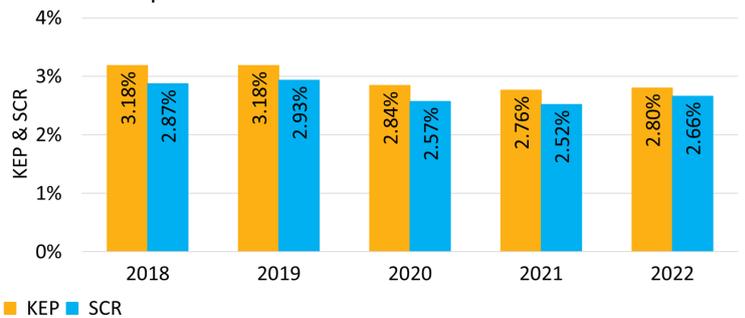
Environment

KEA performance



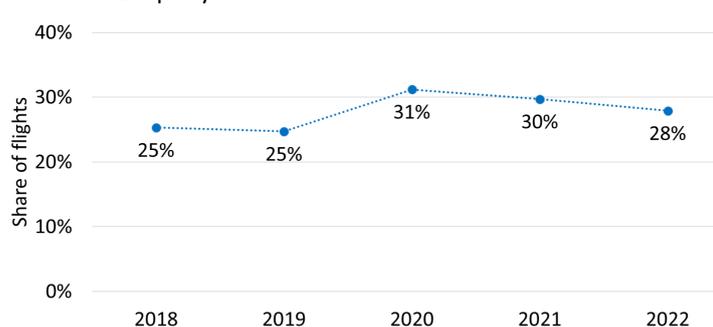
Austria did not achieve its 2022 KEA target by 0.13 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



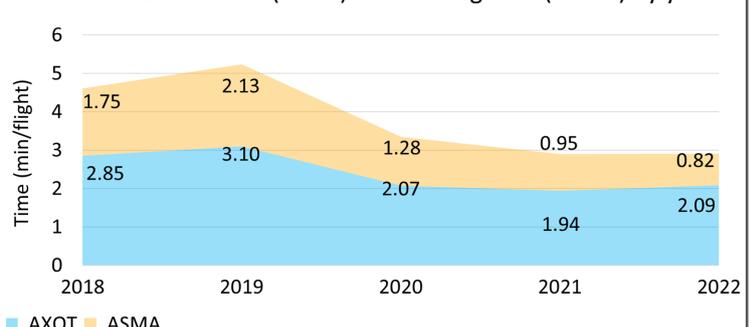
Austria did not make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

Share of CDO per year



Austria's CDO performance worsened in 2022 compared to 2021.

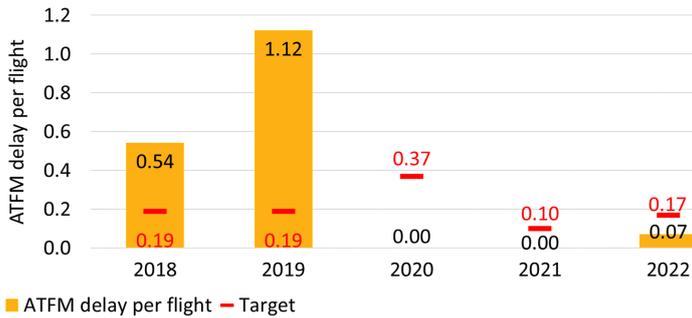
Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 2.91 minutes per flight either taxiing or holding at Vienna airport.

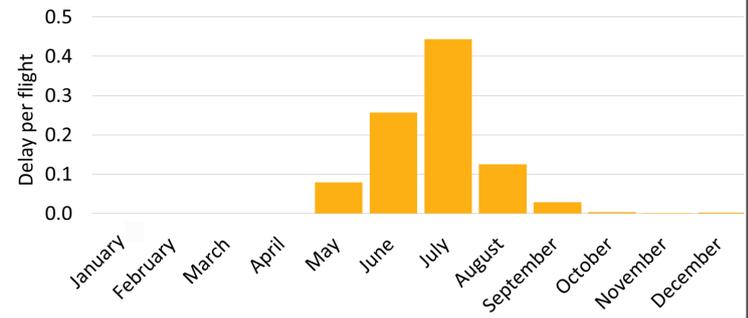
Capacity

ATFM delay per flight (min/flight)



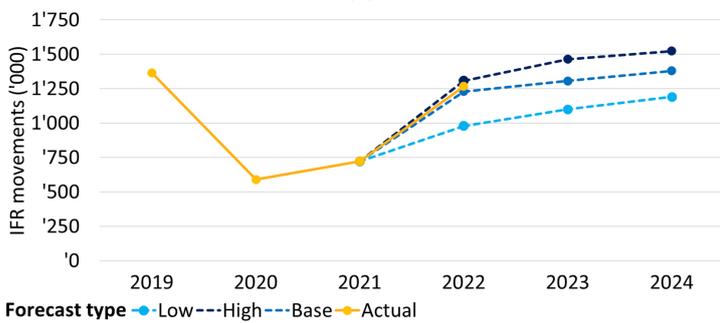
Delays in Austria increased by 0.07 minutes/flight. Performance in Austria exceeded the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



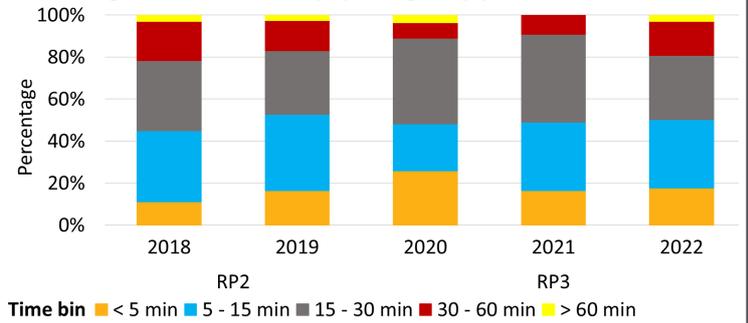
Delays were highest during the summer months. Adverse weather, ATC staffing and ATC capacity were the key delay reasons.

IFR movements and forecasts by year



IFR movements in Austria were 3% above the base scenario of the 2021 October forecast in 2022.

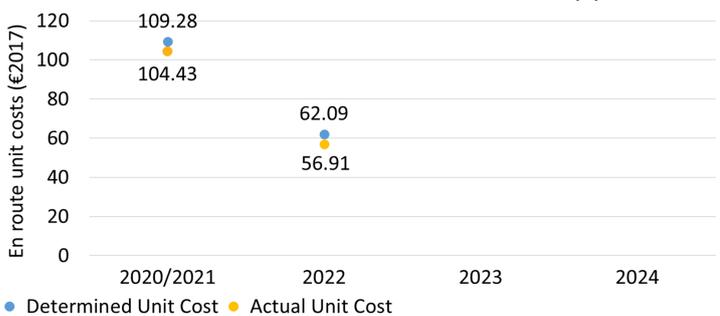
Percentage of en route delays per flight by year and time bin



The share of delayed flights with delays longer than 15 minutes decreased by 1 percentage point compared to 2021.

Cost-efficiency

En route actual unit cost and determined unit cost by year



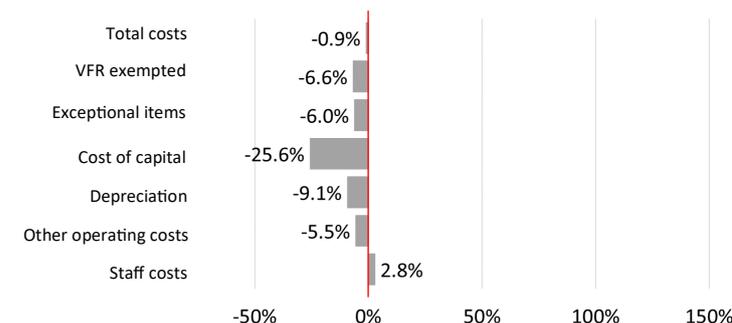
The 2022 en route actual unit cost was lower than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



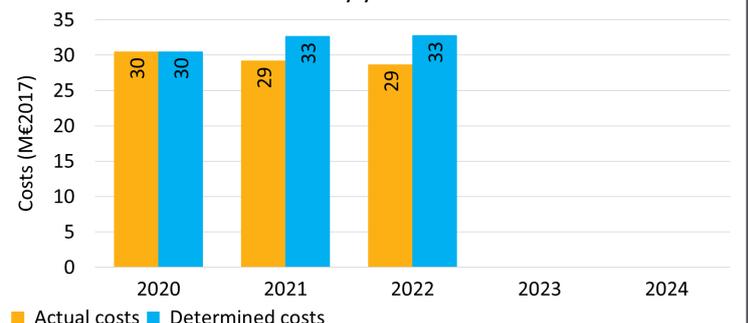
The 2022 terminal actual unit cost was higher than the determined unit cost.

% difference between 2022 actual costs and determined



The increase in staff costs was offset by the decreases in all the other cost categories.

Costs related to investments by year



Austro Control 2022 costs related to investments were 13% lower than planned due to delayed investments caused by COVID-19.

Comments from the Performance Review Body:

Safety:

- In 2022, skeyes did not achieve its planned maturity level for safety culture but it improved for other management objectives, reaching the RP3 target for safety assurance. The ANSP, together with the NSA, established a Safety Development Plan with corrective actions focusing on improving safety culture to ensure the required RP3 target levels are met by 2024.
- The overall safety performance of skeyes was stable, the runway incursion rate was lower than in 2021 and remained below the Union-wide average.
- ANA Lux did not achieve its planned maturity levels in 2022 and showed degrading performance compared with 2021. ANA Lux established a Corrective Action Plan addressing specific areas for improvements.
- The overall safety performance of ANA Lux was stable, the rate of occurrences was comparable with previous years and remained below the Union-wide average.
- Both skeyes and ANA Lux could improve its safety management by implementing automated safety data recording systems.

Environment:

- Belgium achieved a KEA performance of 3.53% compared to its target of 3.05% and did not contribute positively to the Union-wide target. KEA performance is at similar levels to 2021.
- The NSA states that given the limited size of the Belgium-Luxembourg airspace, possibilities to improve the KPI are also limited.
- Both KEP and SCR improved in comparison with 2021's performance.
- The share of CDO flights decreased by 12.76% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.47 to 0.57 min/flight, while additional taxi out time increased from 1.28 to 1.53 min/flight.

Capacity:

- Belgium-Luxembourg registered 0.13 minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.17.
- The average number of IFR movements was 18% below 2019 levels in Belgium-Luxembourg in 2022.
- In Brussels ACC, the number of ATCOs in OPS is planned to increase by 14% by the end of RP3, with the actual values remaining below the plan in 2022. In Maastricht ACC, a 9% increase in the number of ATCOs in OPS was planned by the end of RP3, but more ATCOs than anticipated have stopped working in OPS, thus not actual values remained below the plan in 2022.

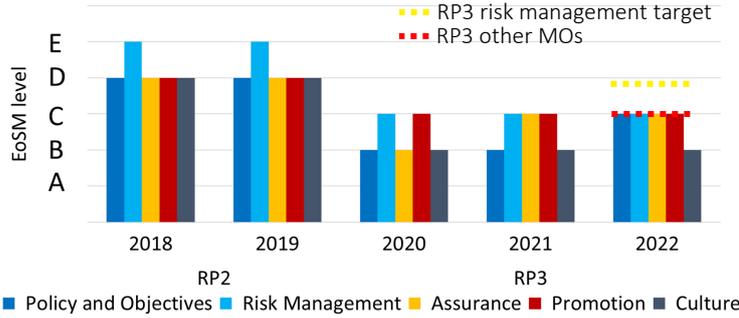
Cost-efficiency:

- The en route 2022 actual unit cost of Belgium-Luxembourg was 98.91€₂₀₁₇, 5.3% lower than the determined unit cost (104.47€₂₀₁₇).
- The terminal actual unit cost of Belgium was 243.16€₂₀₁₇, 3.6% lower than the determined unit cost (252.17€₂₀₁₇). The terminal actual unit cost of Luxembourg was 243.87€₂₀₁₇, 1.3% lower than the determined unit cost (247.01€₂₀₁₇).
- The en route 2022 actual service units (2,096K) were in line with the determined service units (2,108K).
- The en route 2022 actual total costs were 13M€₂₀₁₇ (-5.8%) lower compared to the determined, as all cost categories decreased.
- The decrease was mainly attributable to lower staff cost (-6.3M€₂₀₁₇, or -4.0%) and other operating costs (-5.9M€₂₀₁₇, or -12%). The reduced staff cost was due to lower staff costs in MUAC. The NSA explained that the lower other operating costs is a consequence of delayed investments.
- Skeyes spent 12.7M€₂₀₁₇ in 2022 related to costs of investments, 2.5% less than determined (13.0M€₂₀₁₇), due to some projects that have been delayed.
- The en route actual unit cost incurred by users of Belgium-Luxembourg in 2022 was 119.54€, while the terminal actual unit cost incurred by users was 236.58€ for Belgium and 243.25€ for Luxembourg.

* There is not an approved performance plan for Belgium.

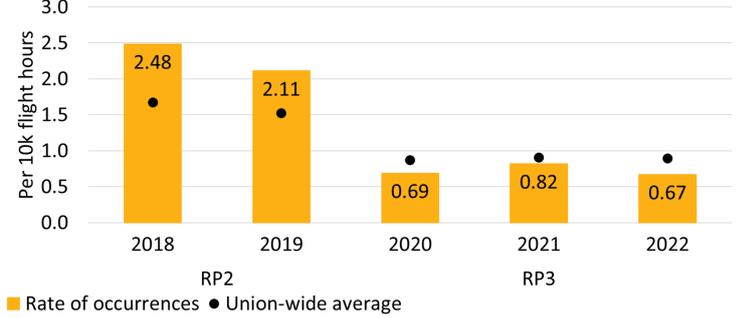
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



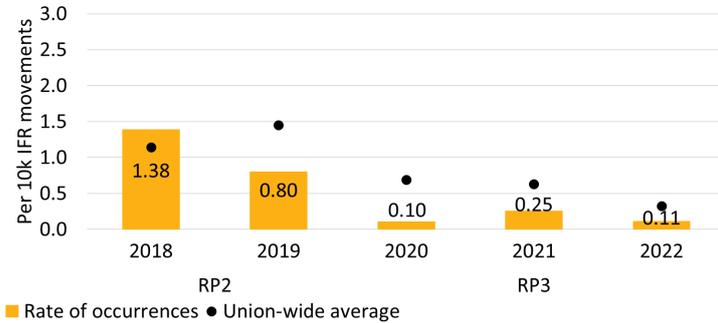
skyes did not achieve the RP3 targets for two MOs in 2022.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour marginally decreased in 2022 relative to 2021. The rate is below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate is below the Union-wide average.

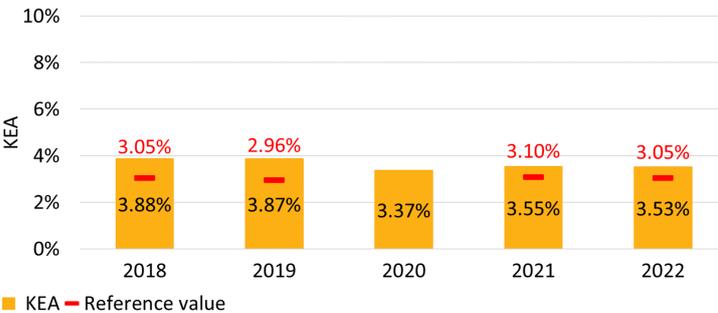
Use of automated safety data recording systems



skyes does not use automated safety data recording systems for RIs or for SMIs.

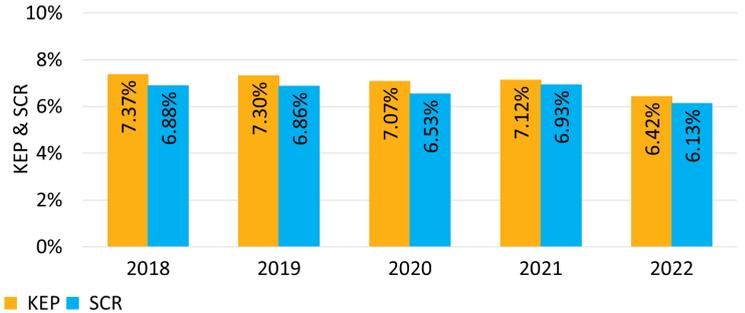
Environment

KEA performance



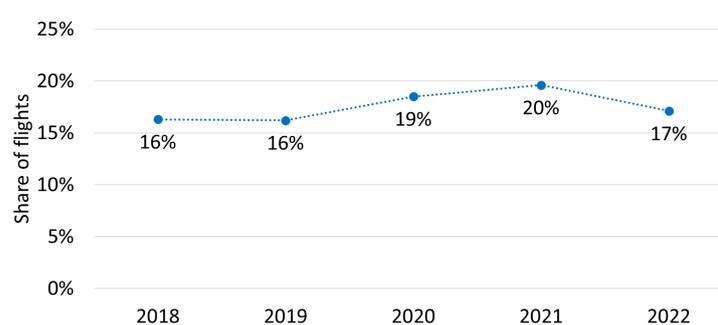
Belgium-Luxembourg did not achieve its 2022 KEA target by 0.48 percentage points, and the performance was marginally better.

KEP and SCR performance



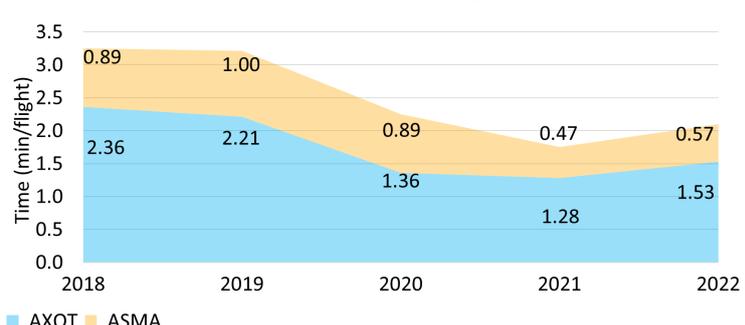
Belgium-Luxembourg made SCR available to airspace users who were then able to plan shorter routes in 2022.

Share of CDO per year



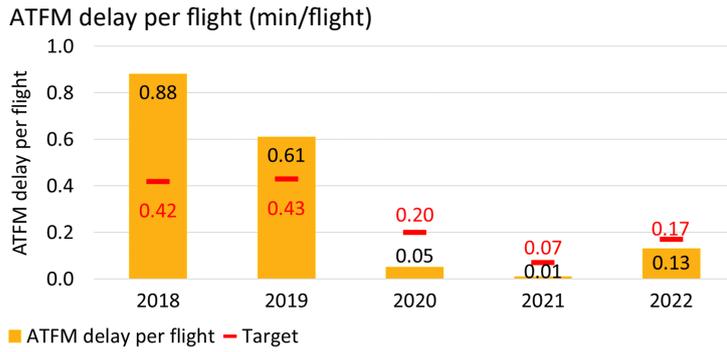
Belgium's CDO performance slightly worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

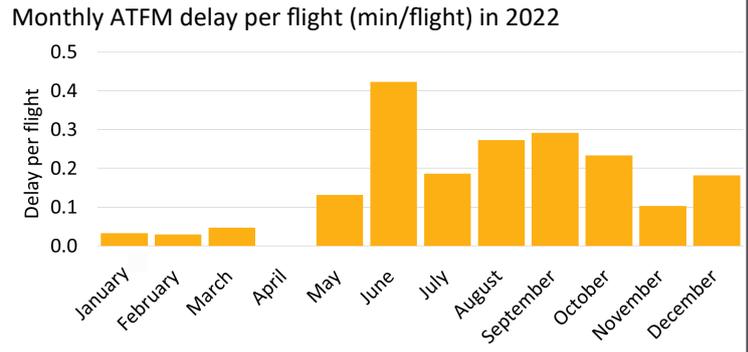


Terminal airspace users spent an additional 2.10 minutes per flight either taxiing or holding at Brussels airport.

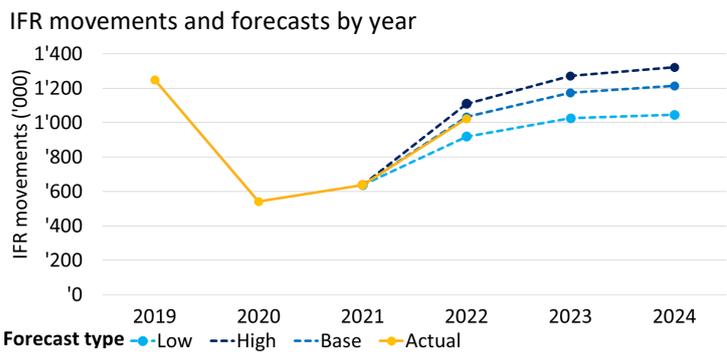
Capacity



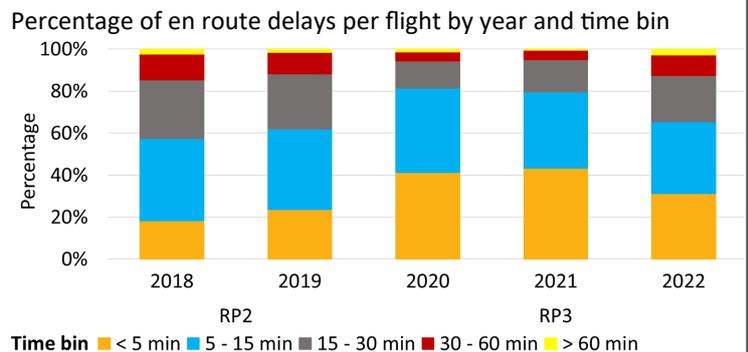
Delays in Belgium-Luxembourg increased by 0.12 minutes/flight. Performance exceeded the local target in 2022.



Delays were highest during June, August, September and October, mainly due to ATC staffing.

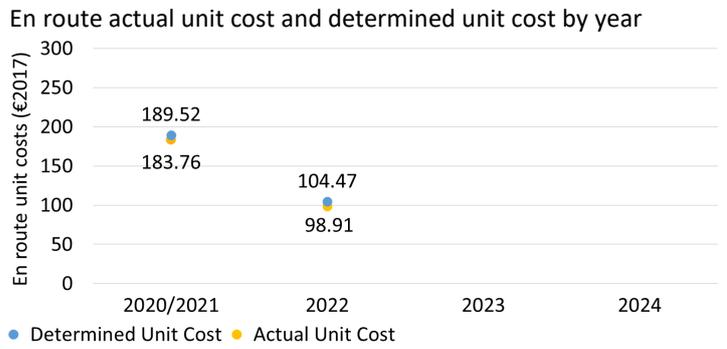


IFR movements in Belgium-Luxembourg were 1% below the base scenario of the 2022 June forecast in 2022.

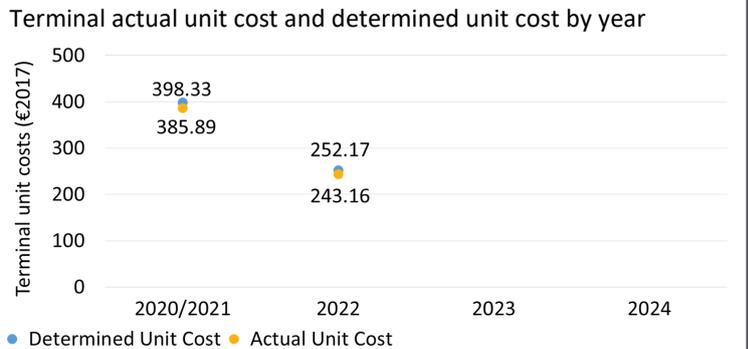


The share of delayed flights with delays longer than 15 minutes increased by 14 percentage points compared to 2021.

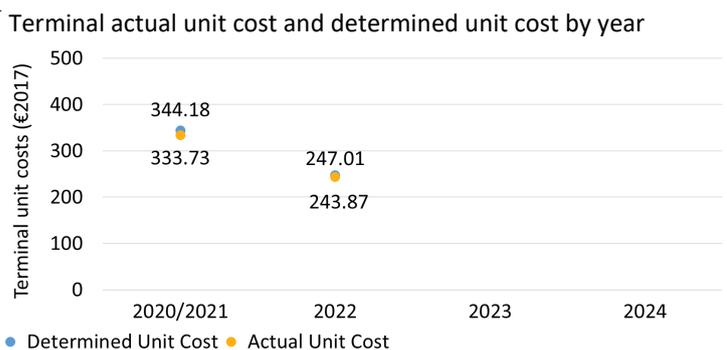
Cost-efficiency



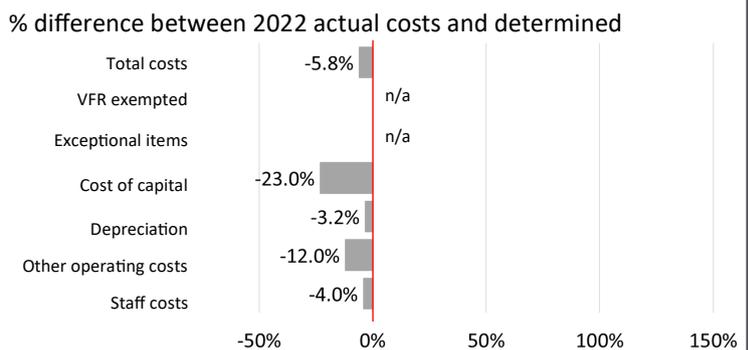
The 2022 en route actual unit cost of Belgium-Luxembourg was lower than the determined unit cost.



The 2022 terminal actual unit cost of Belgium was lower than the determined unit cost.



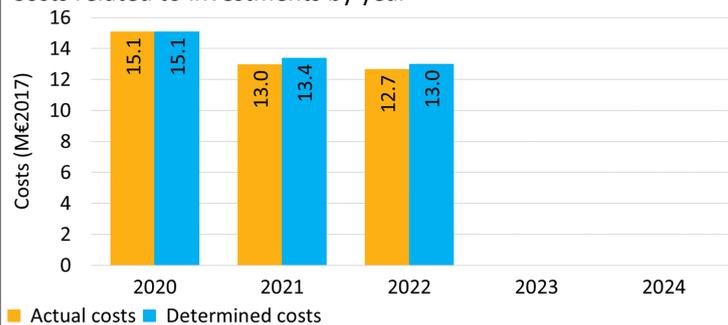
The 2022 terminal actual unit of Luxembourg was lower than the determined unit cost.



Belgium-Luxembourg lowered total cost by 5.8% in 2022 compared to the determined, as all cost categories decreased.

Cost-efficiency

Costs related to investments by year



Skyles 2022 costs related to investments were 2.5% lower than planned, due to delayed investments

Comments from the Performance Review Body:

Safety:

- BULATSA did not achieve the RP3 target for safety risk management, but it exceeded the RP3 targets for safety assurance and safety promotion. BULATSA exceeded its planned maturity levels from the performance plan.
- Bulgaria adopted the specific safety measures to achieve the acceptable level of safety performance according to its National Safety Plan, that is a part of the National Safety Programme. The plan's objectives included the integration of key safety initiatives to introduce continuous safety improvements.
- Bulgaria did not provide monitoring data for separation minima infringements (SMIs).
- BULATSA could improve its safety management by implementing automated safety data recording systems.

Environment:

- Bulgaria achieved a KEA performance of 3.28% compared to its target of 2.25% and did not contribute positively towards achieving the Union-wide target. It should be noted that KEA performance worsened in comparison to 2021.
- Both KEP and SCR deteriorated in comparison to 2021.
- The NSA states the reasons for not meeting the environmental targets are related to the geopolitical situation and airspace restrictions due to the Crimean crisis and Russia's war of aggression against Ukraine, shifts in traffic flows, and airspace user preferences.
- Bulgaria has no airports that are regulated under the RP3 performance and charging scheme.

Capacity:

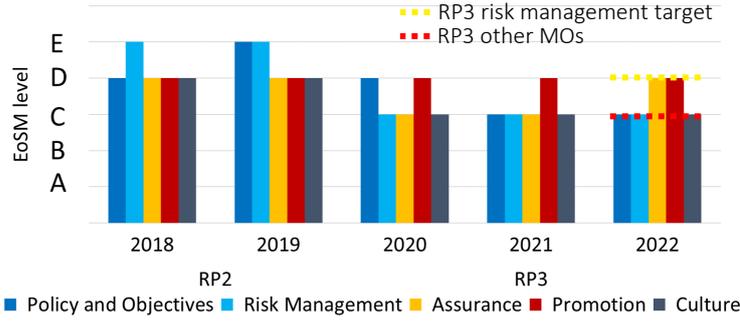
- Bulgaria registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.08.
- The average number of IFR movements was still 7% below 2019 levels in Bulgaria in 2022.
- The number of ATCOs in OPS is planned to increase by 7% by the end of RP3, with the actual value being above the 2022 plan in Sofia ACC.

Cost-efficiency:

- The en route 2022 actual unit cost of Bulgaria was 25.86€₂₀₁₇, 25% lower than the determined unit cost (34.55€₂₀₁₇). Bulgaria does not have a terminal charging zone.
- The en route 2022 actual service units (3,871K) were 24% higher than the determined service units (3,109K).
- The en route 2022 actual total costs were 7.3M€₂₀₁₇ (-6.8%) lower than determined. The decrease was attributable to lower staff costs (-5.6M€₂₀₁₇, or -8.5%) and other operating costs (-3.0M€₂₀₁₇, or -17%). Although total actual costs in nominal terms were slightly higher (+1.3%) than planned, the decreases in real terms were mainly resulting from higher-than-expected inflation.
- BULATSA spent 18.9M€₂₀₁₇ in 2022 related to costs of investments, 2.6% higher than determined (18.4M€₂₀₁₇). This was due to an increase in depreciation cost, even though the net book value of fixed assets decreased.
- The en route actual unit cost incurred by users in 2022 was 33.11€.

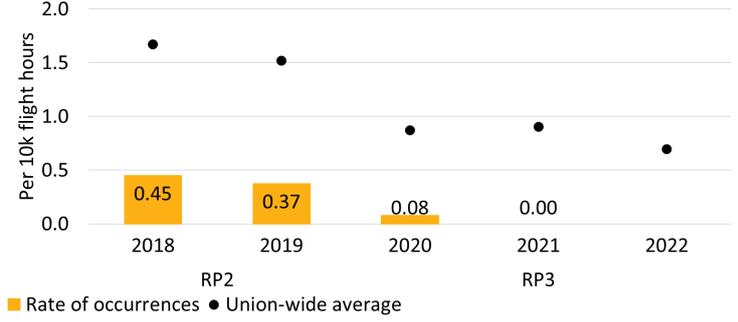
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



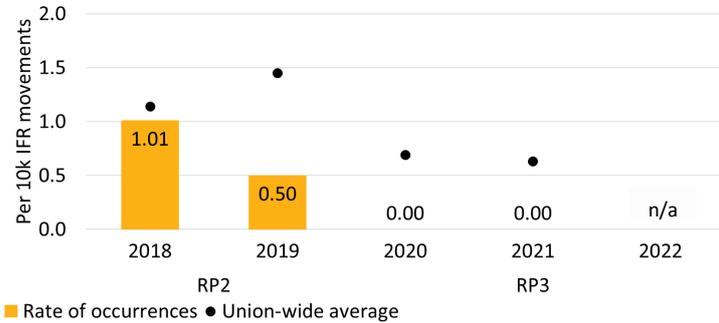
BULATSA did not achieve the targets for safety risk management, but exceeded the targets for safety promotion and assurance.

Rate of separation minima infringement (SMI) by year



Bulgaria did not provide monitoring data for SMIs in 2022.

Rate of runway incursions (RIs) by year



Bulgaria is not obliged to report RIs as no airport is regulated under the performance and charging scheme.

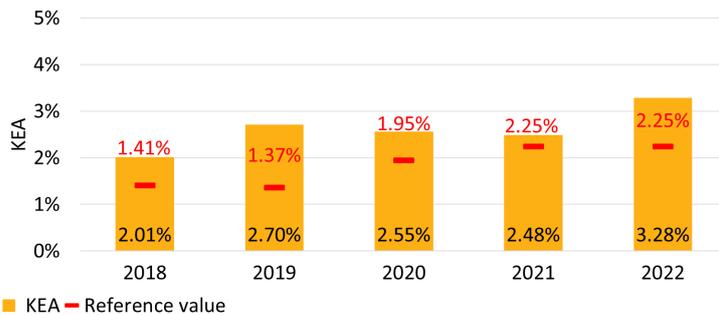
Use of automated safety data recording systems



Bulgaria does not use automated safety data recording systems for RIs or for SMIs.

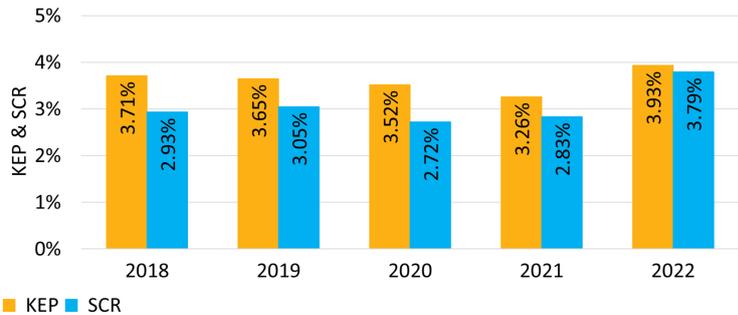
Environment

KEA performance



Bulgaria did not achieve its 2022 KEA target by 1.03 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



Bulgaria did not make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

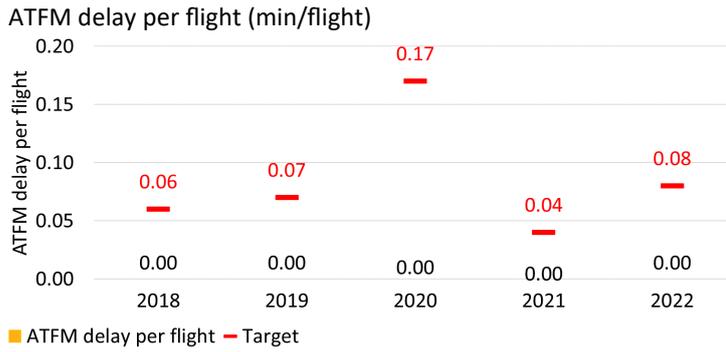
No Bulgarian airport is regulated under the performance and charging scheme.

No Bulgarian airport is regulated under the performance and charging scheme.

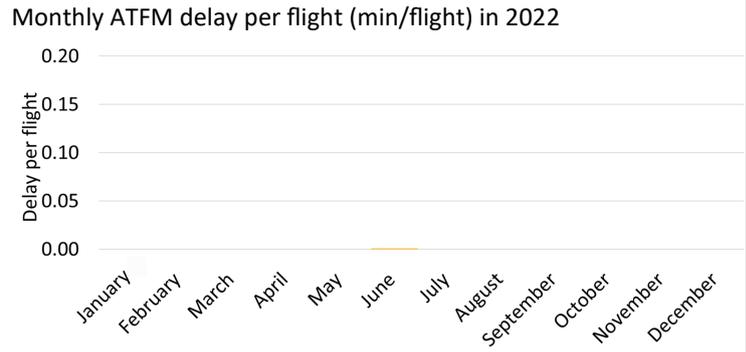
Bulgaria did not declare any of its airports as subject to the performance and charging Regulation.

Bulgaria did not declare any of its airports as subject to the performance and charging Regulation.

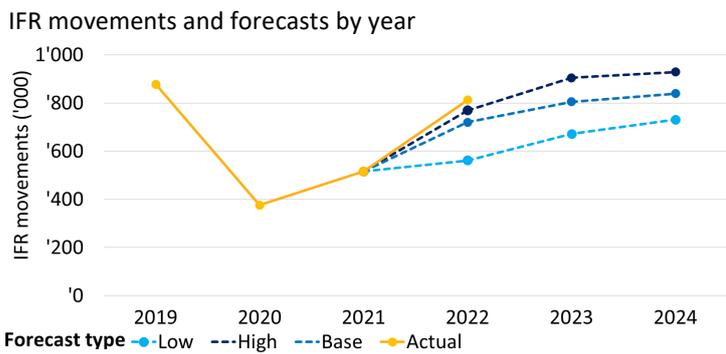
Capacity



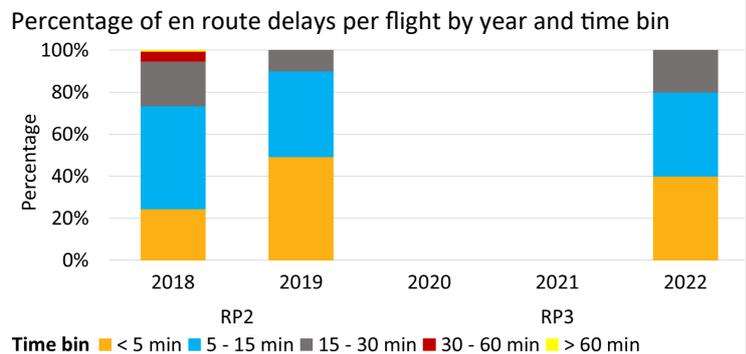
Delays in Bulgaria remained at zero minutes/flight. Performance in Bulgaria exceeded the local target in 2022.



Average en route ATFM delay per flight was zero in Bulgaria in 2022.

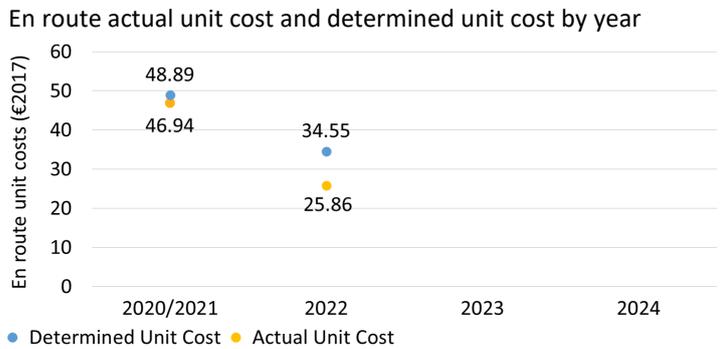


IFR movements in Bulgaria were 6% above the high scenario of the 2021 October forecast in 2022.



Low levels of delays should be considered when reviewing the graph.

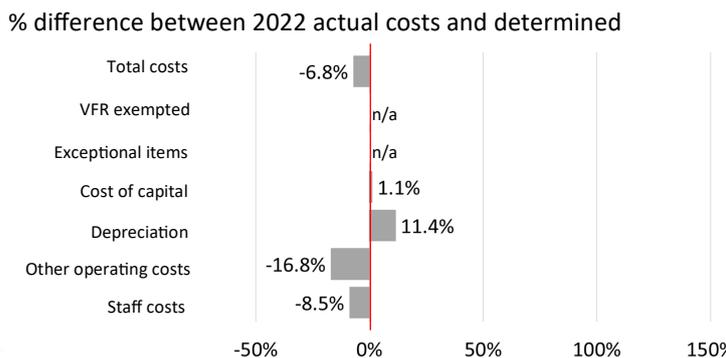
Cost-efficiency



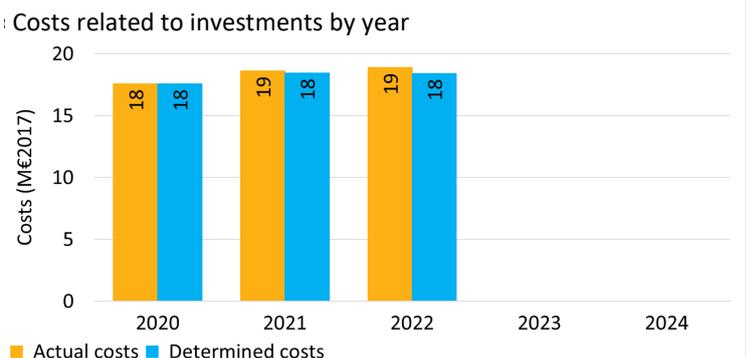
The 2022 en route actual unit cost was lower than the determined unit cost.

Bulgaria does not have a terminal charging zone.

Bulgaria did not declare any terminal charging zones as subject to the performance and charging Regulation.



In 2022, Bulgaria decreased total cost by 6.8%, mainly as a result of higher-than-expected inflation.



BULATSA 2022 costs related to investments were 2.6% higher than planned.

Comments from the Performance Review Body:

Safety:

- Croatia Control improved its performance in safety risk management but not sufficiently to achieve the RP3 target. Croatia Control exceeded the planned maturity levels for safety policy and objectives. The establishment of a proactive safety management system at CCL gave confidence that the ANSP can achieve the RP3 targets before the end of RP3.
- Croatia recorded an increase in the rate of runway incursions (RIs) and separation minima infringements (SMIs) in 2022. Croatia Control adopted the European Action Plan for the Prevention of Runway Incursions.
- Croatia monitored safety performance using specific safety tools, including the automated safety data recording systems for the recording of separation minima infringements and runway incursions.

Environment:

- Croatia achieved a KEA performance of 1.49% compared to its target of 1.46% and did not contribute positively towards achieving the Union-wide target. For the first time in five years, Croatia slightly missed the target in 2022.
- The NSA states that there were no specific reasons why the performance target was not achieved.
- Both KEP and SCR deteriorated in comparison to 2021.
- Croatia has no airports that are regulated under the RP3 performance and charging scheme.

Capacity:

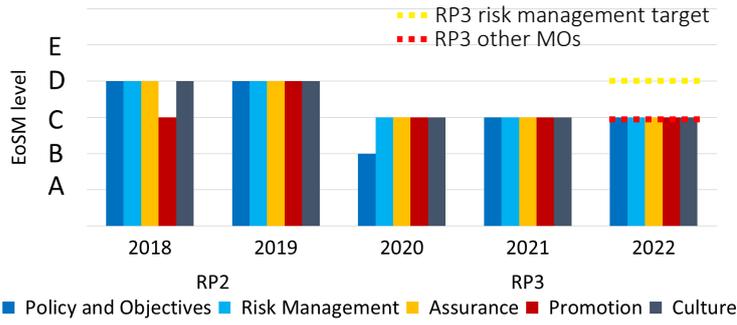
- Croatia registered 0.57 minutes of average en route ATFM delay per flight during 2022, thus not achieving the local target value of 0.16.
- The average number of IFR movements was slightly below 2019 levels in Croatia in 2022.
- Traffic is expected to grow dynamically. The number of ATCOs in OPS is planned to increase by 32% in Zagreb ACC by the end of RP3. The actual value remains below the 2022 plan, due to the higher-than-planned number of ATCOs leaving and a lower-than-planned number of ATCOs being trained by 2022.

Cost-efficiency:

- The en route 2022 actual unit cost of Croatia was 34.32€₂₀₁₇, 36% lower than the determined unit cost (53.35€₂₀₁₇). Croatia does not have a terminal charging zone.
- The en route 2022 actual service units (2,229K) were 41% higher than the determined service units (1,582K).
- The en route 2022 actual total costs were 7.9M€₂₀₁₇ (-9.4%) lower than determined, as all cost categories decreased. It is mainly attributable to lower staff costs (-5.6M€₂₀₁₇, or -11%). The NSA explained that it is mainly due to not fully realised recruitment plan. The decreases in real terms were also a result of significantly higher-than-expected inflation.
- Croatia Control spent 10.5M€₂₀₁₇ in 2022 related to costs of investments, 3.4% less than determined (10.9M€₂₀₁₇), mainly due to the postponement of investments.
- As for the previous monitoring year, the discrepancies regarding total costs are significant. As already mentioned last year, the PRB invites the NSA to analyse the discrepancies, identify their reasons, and the Member State to take immediate, adequate, and proportionate actions.
- The en route actual unit cost incurred by users in 2022 was 41.73€.

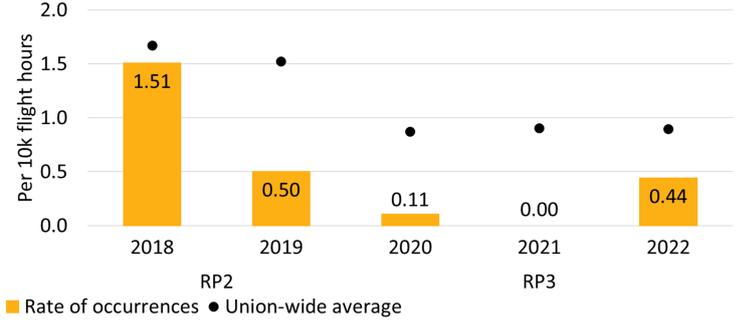
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



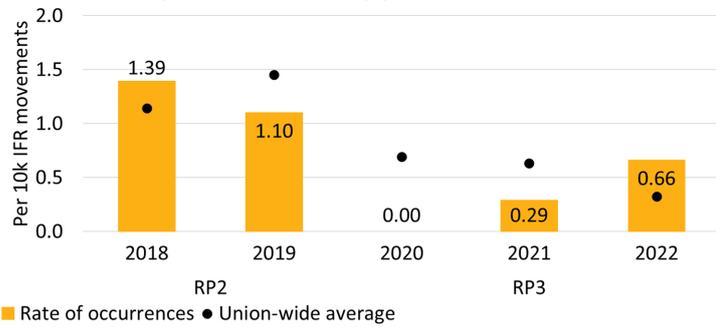
Croatia Control did not achieve the RP3 target for safety risk management but achieved the RP3 targets for all other MOs.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour increased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement increased in 2022 relative to 2021. The rate was above the Union-wide average.

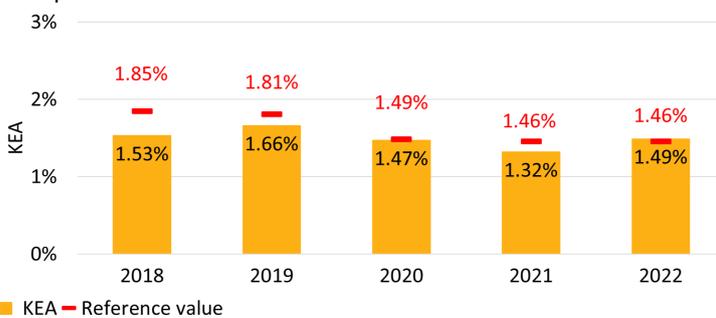
Use of automated safety data recording systems



Croatia uses the automated safety data recording systems for SMIs and RIs and is one of the few ANSPs doing so.

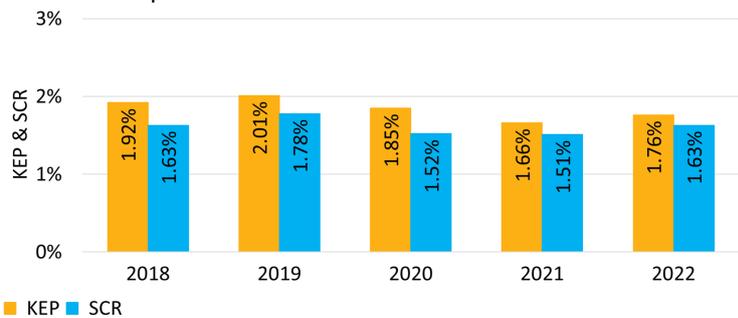
Environment

KEA performance



Croatia did not achieve its 2022 KEA target by 0.03 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



Croatia did not make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

No Croatian airport is regulated under the performance and charging scheme.

No Croatian airport is regulated under the performance and charging scheme.

Croatia did not declare any of its airports as subject to the performance and charging Regulation.

Croatia did not declare any of its airports as subject to the performance and charging Regulation.

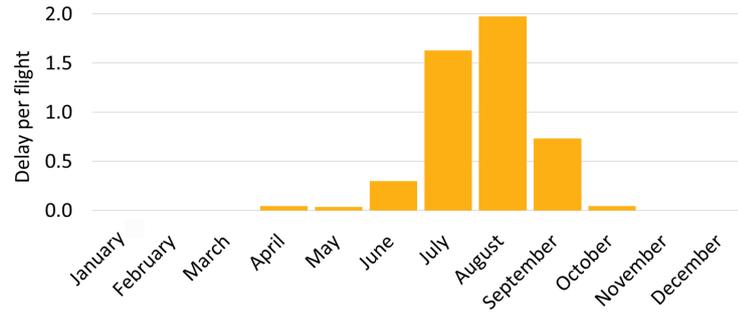
Capacity

ATFM delay per flight (min/flight)



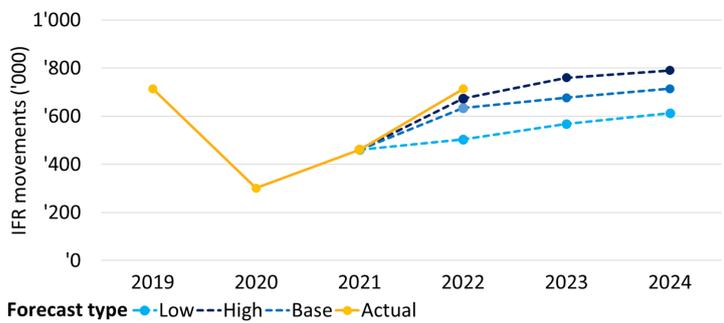
Delays in Croatia increased by 0.5 minutes/flight year-on-year. Performance in Croatia was worse than the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



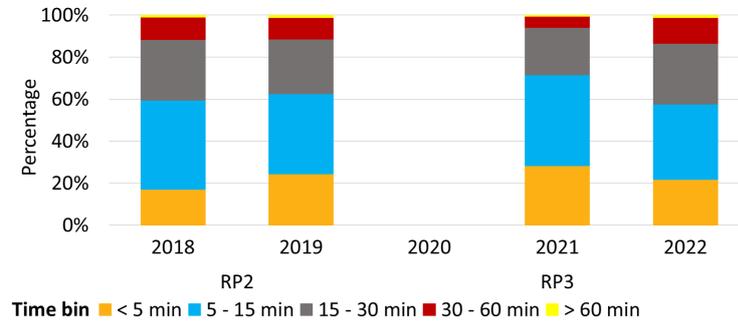
Delays were highest during July, August and September, mostly driven by ATC capacity reasons and adverse weather.

IFR movements and forecasts by year



IFR movements in Croatia were 6% above the high scenario of the 2021 October forecast in 2022.

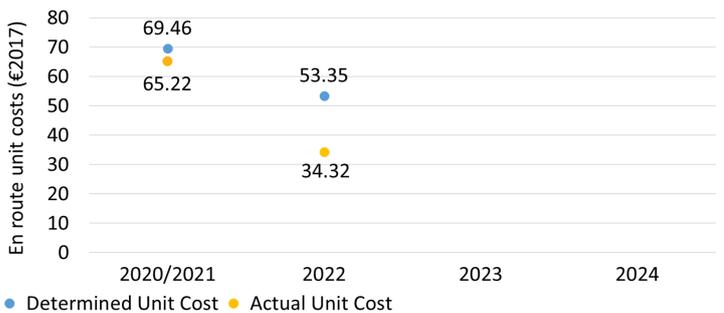
Percentage of en route delays per flight by year and time bin



Share of flights with delays longer than 15 minutes increased by 14 percentage points and was higher than pre-COVID values.

Cost-efficiency

En route actual unit cost and determined unit cost by year

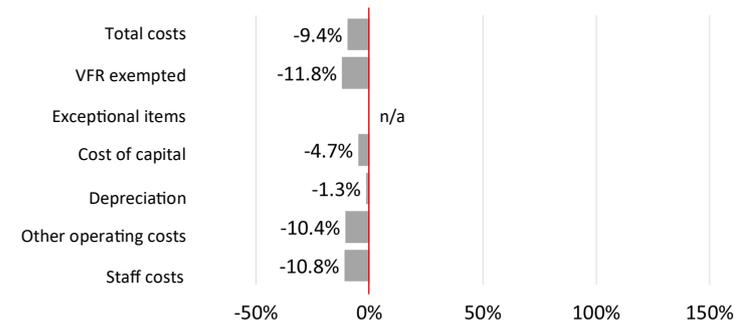


The 2022 en route actual unit cost was lower than the determined unit cost.

Croatia does not have a terminal charging zone.

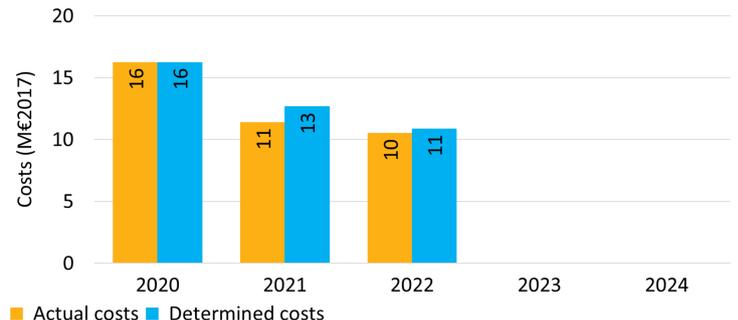
Croatia did not declare any terminal charging zones as subject to the performance and charging Regulation.

% difference between 2022 actual costs and determined



Croatia decreased costs in all cost categories compared to the determined.

Costs related to investments by year



Croatia Control 2022 costs related to investments were 3.4% lower than planned.

Comments from the Performance Review Body:

Safety:

- Cyprus (CYATS) achieved the RP3 target on safety culture and safety assurance in 2022, but three remaining management objectives required improvement. CYATS performance lagged behind the expected improvements included in the performance plan, with some degradation compared with 2021.
- Cyprus adopted its National Safety Plan for 2022 with a clear commitment to the effective safety oversight of ANSPs including relevant KPIs and targets.
- Cyprus recorded a stable performance with respect to the safety occurrences with a slight increase in rate of separation minima infringements (SMIs) and no occurrences of runway incursions (RIs) in 2022.
- CYATS could improve its safety management by implementing automated safety data recording systems.

Environment:

- Cyprus achieved a KEA performance of 4.21% compared to its target of 3.84% and did not contribute positively towards achieving the Union-wide target.
- KEA performance in 2022 improved in comparison to 2021, though by 0.28 percentage points.
- The NSA states that the target was not met due to the inability to optimise traffic flows in the entire of Nicosia FIR.
- Both KEP and SCR improved in comparison to 2021.
- Cyprus has no airports that are regulated under the RP3 performance and charging scheme.

Capacity:

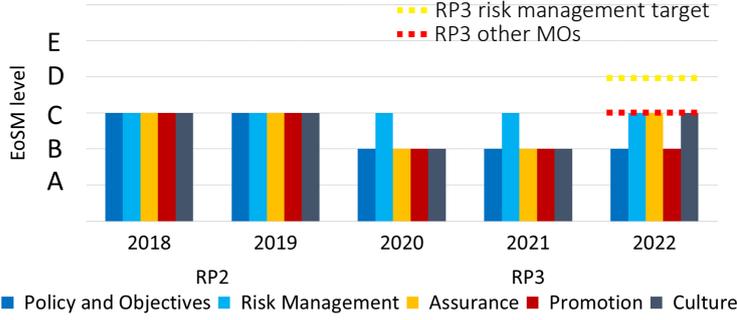
- Cyprus registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.16.
- The average number of IFR movements was 16% below 2019 levels in Cyprus in 2022.
- The number of ATCOs in OPS is planned to increase by 2% by the end of RP3 with the value being above the 2022 plan in Nicosia ACC.

Cost-efficiency:

- The en route 2022 actual unit cost of Cyprus was 29.97€₂₀₁₇, 3.1% lower than the determined unit cost (30.92€₂₀₁₇). Cyprus does not have a terminal charging zone.
- The en route 2022 actual service units (1,788K) were 2.7% lower than the determined service units (1,837K).
- The en route 2022 actual total costs were 3.2M€₂₀₁₇ (-5.7%) lower than determined, as all cost categories decreased. It was mainly attributable to lower other operating costs (-1.8M€₂₀₁₇, or -6.3%) largely due to the delay of a new building.
- DCAC Cyprus spent 3.7M€₂₀₁₇ in 2022 related to costs of investments, 12% less than determined (4.2M€₂₀₁₇), due to the postponement of payment for investments that have been delayed.
- As for the previous monitoring year, the discrepancies regarding costs of investments were significant. The PRB invites the NSA to analyse the discrepancies, identify their reasons, and the Member State to take immediate, adequate, and proportionate action to ensure the implementation of the investment plans to avoid future capacity gaps.
- The en route actual unit cost incurred by users in 2022 was 33.36€.

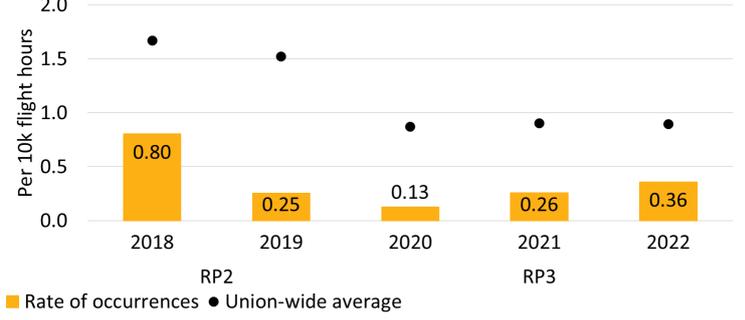
Safety

Main ANSP's effectiveness of safety management (EoSM) by year



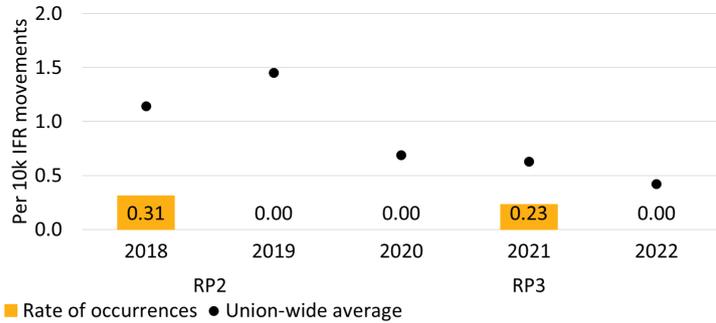
DCAC Cyprus did not achieve the RP3 targets in three safety MOs but improved the performance in safety culture and assurance.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour increased marginally in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



Cyprus did not report any RIs in 2022.

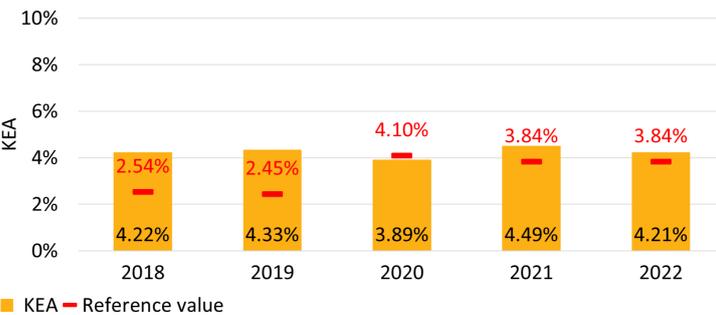
Use of automated safety data recording systems



Cyprus does not use automated safety data recording systems for RIs or for SMIs.

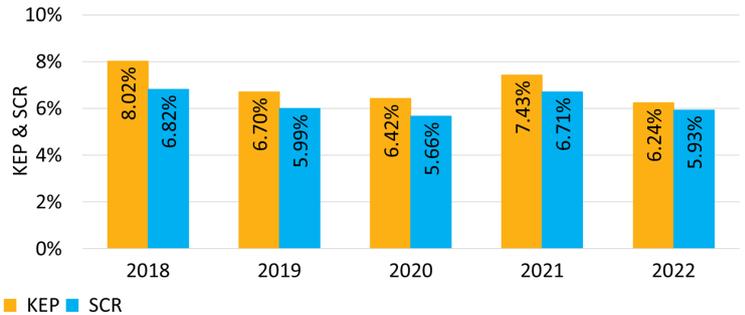
Environment

KEA performance



Cyprus did not achieve its 2022 KEA target by 0.37 percentage points, and performance improved relative to 2021.

KEP and SCR performance



Cyprus was able to make shorter constrained routes available to airspace users who were then able to plan shorter routes in 2022.

No Cypriot airport is regulated under the performance and charging scheme.

No Cypriot airport is regulated under the performance and charging scheme.

Cyprus did not declare any of its airports as subject to the performance and charging Regulation.

Cyprus did not declare any of its airports as subject to the performance and charging Regulation.

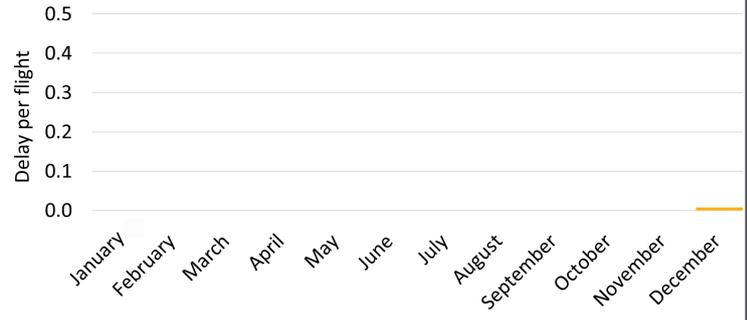
Capacity

ATFM delay per flight (min/flight)



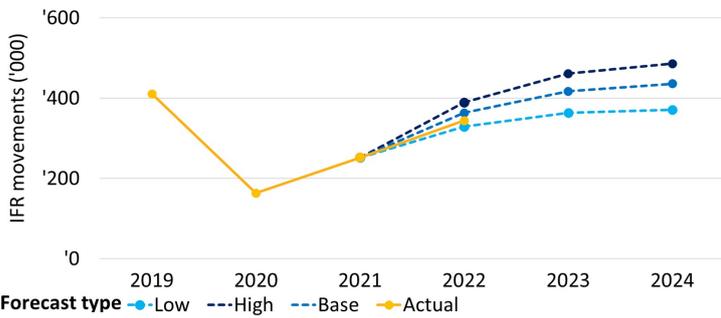
Delays in Cyprus remained at zero minutes per flight. Performance in Cyprus exceeded the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



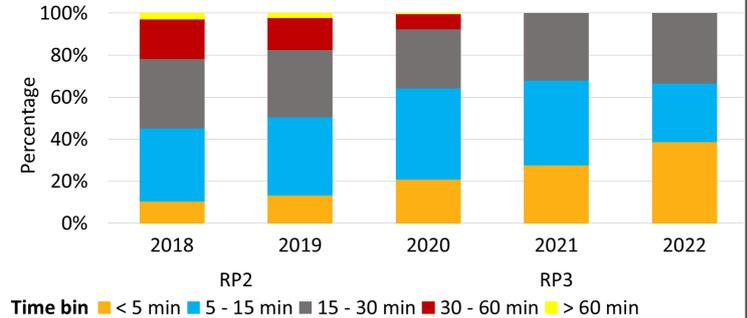
There were only negligible ATFM delays in December in Cyprus.

IFR movements and forecasts by year



IFR movements in Cyprus were 5% below the base scenario of the 2022 June forecast in 2022.

Percentage of en route delays per flight by year and time bin



Low levels of delays should be considered when reviewing the graph.

Cost-efficiency

En route actual unit cost and determined unit cost by year

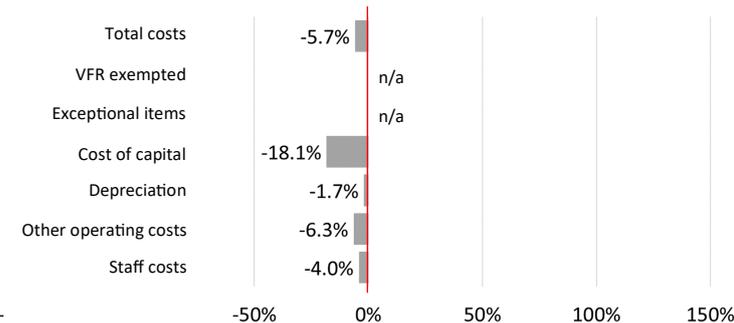


The 2022 en route actual unit cost was lower than the determined unit cost.

Cyprus does not have a terminal charging zone.

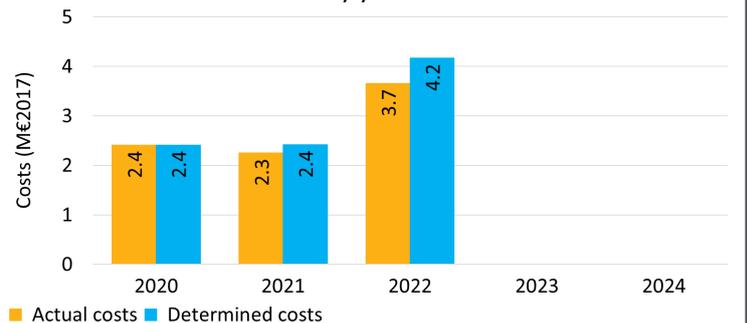
Cyprus did not declare any terminal charging zones as subject to the performance and charging Regulation.

% difference between 2022 actual costs and determined



In 2022 actual costs were 5.7% lower than determined, mainly due to the reduction in other operating costs.

Costs related to investments by year



DCAC Cyprus 2022 costs related to investments were 12% lower than planned.

Comments from the Performance Review Body:

Safety:

- ANS CR has already exceeded the RP3 EoS targets in 2020. ANS CR undertook further actions to enhance its SMS function and to align it to Regulation (EU) 2017/373.
- Despite the traffic increase, the rate of runway incursions at the Prague airport (LKPR) was maintained. The rate of separation minima infringements marginally decreased in 2022. The NSA closely monitors the rate of occurrences and assesses the effectiveness of implemented measures through regular meetings of the Safety Board.
- ANS CR used the automated safety data recording systems for separation minima infringements and runway incursion and was one of the few ANSPs that did so.

Environment:

- Czech Republic achieved a KEA performance of 2.55% compared to its target of 2.05% and did not contribute positively towards achieving the Union-wide target.
- The NSA states the main reason for not meeting the target is the severe impact of flight trajectories due to the Russia's war of aggression against Ukraine.
- Both KEP and SCR deteriorated in comparison with 2021. The value of these two indicators is similar, meaning airspace users plan close to the shortest route available.
- The share of CDO flights decreased by 11.58% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.50 to 0.69 min/flight, while additional taxi out time increased from 1.76 to 1.90 min/flight.

Capacity:

- Czech Republic registered 1.50 minutes of average en route ATFM delay per flight during 2022 which has been adjusted to 1.45 during the post-ops adjustment process.
- Average en route ATFM delay per flight was further adjusted to 1.33 minutes per flight due to the exceptional event related to Russia's war of aggression against Ukraine, still not achieving the local target value of 0.11. The discussion between the PRB and the Czech NSA regarding the adjustments due to the exceptional event related to Russia's war of aggression against Ukraine is still ongoing at the time of the publication of this report.
- The average number of IFR movements was 29% below 2019 levels in Czech Republic in 2022.
- The number of ATCOs in OPS is planned to increase by 38% in Prague ACC by the end of RP3. The actual values remained 5% below the planned level in 2022, which is mainly caused by decelerated training due to the COVID impact.
- The system implementation at Prague ACC during 2022 combined with the impact of Russia's war of aggression against Ukraine had a detrimental effect on capacity performance in Czech Republic.

Cost-efficiency:

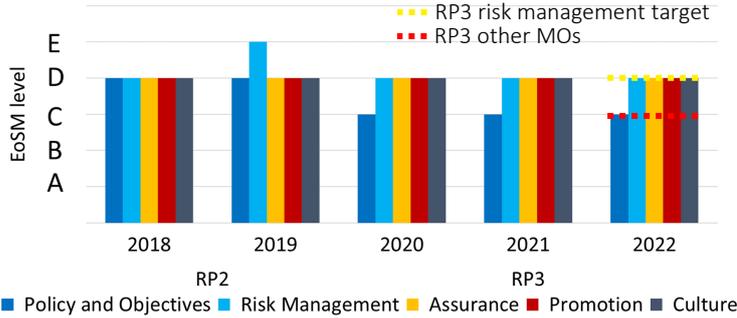
- The en route 2022 actual unit cost of Czech Republic was 51.91€₂₀₁₇, 12% lower than the determined unit cost (59.18€₂₀₁₇).¹ The terminal 2022 actual unit cost was 244.16€₂₀₁₇, 6.8% lower than the determined unit cost (261.84€₂₀₁₇).
- The en route 2022 actual service units (1,814K) were 1.4% lower than the determined service units (1,841K).
- The en route 2022 actual total costs were 15M€₂₀₁₇ (-14%) lower than determined. All cost categories decreased except cost of capital. The decrease was mainly a result of lower staff costs (-11M€₂₀₁₇, or -20%), due to a new collective agreement and lower FTEs than expected.
- ANS CR spent 30M€₂₀₁₇ in 2022 related to costs of investments, 4.6% less than planned (32M€₂₀₁₇), primarily due to changed timelines in some investment projects.
- Czech Republic presented a deviation from the criteria to achieve capacity targets, which was considered justified. Considering that costs are significantly lower and that the 2022 en route capacity targets have not been achieved, the situation raises serious concern. The PRB invites the NSA to analyse the discrepancies and identify their reasons and the Member State to rectify the situation to ensure that the additional means granted through the capacity deviation are actually used to address the capacity issues.
- The en route actual unit cost incurred by users in 2022 was 73.65€, while the terminal actual unit cost incurred by users was

¹ The relevant figures for actual costs 2022 will be updated in the Monitoring Report 2023 following the correction from Czech Republic.

² Czech Republic will not recover the difference between actual and planned en route NSA costs, as from the NSA cost-risk sharing report.

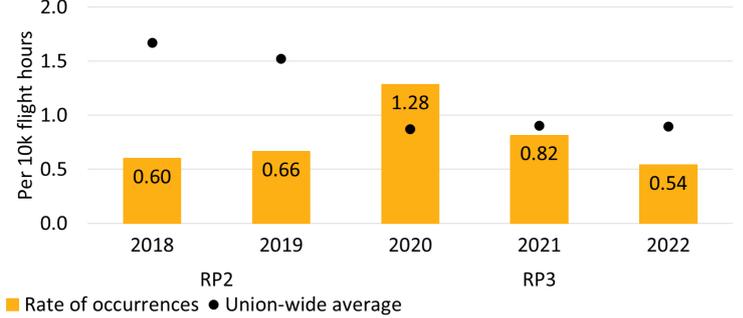
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



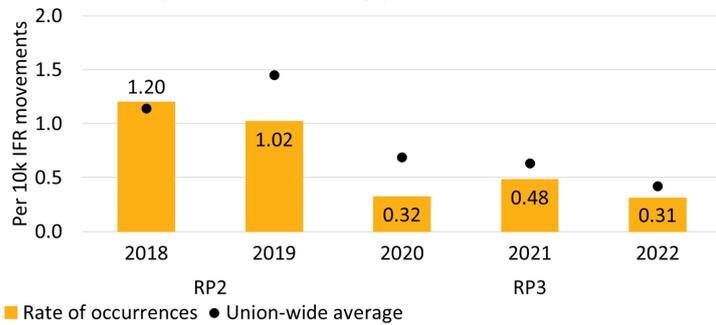
ANS CR exceeded the RP3 targets achieving level D in four MOs.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour decreased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was below the Union-wide average.

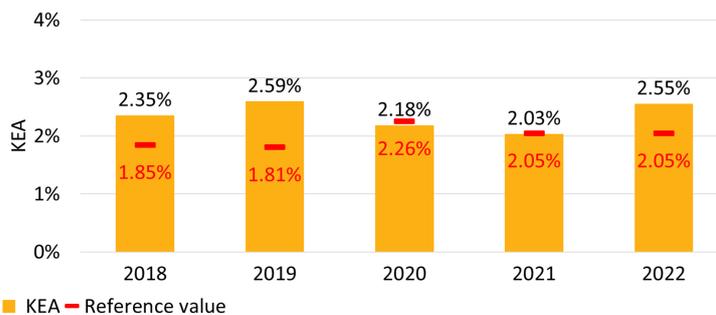
Use of automated safety data recording systems



Czech Republic uses the automated safety data recording systems for RIs and for SMIs.

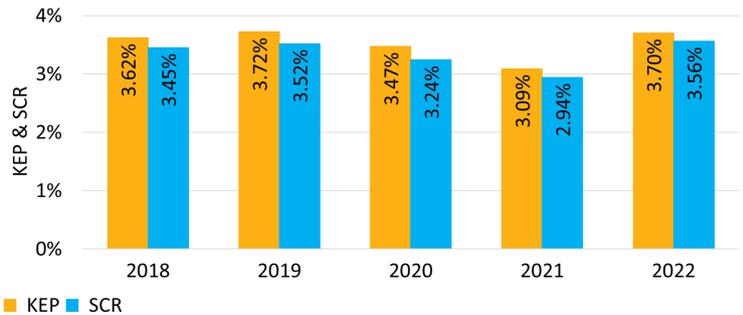
Environment

KEA performance



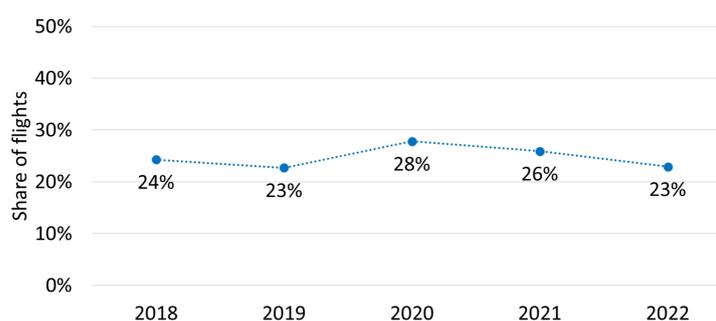
Czech Republic did not achieve its 2022 KEA target by 0.50 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



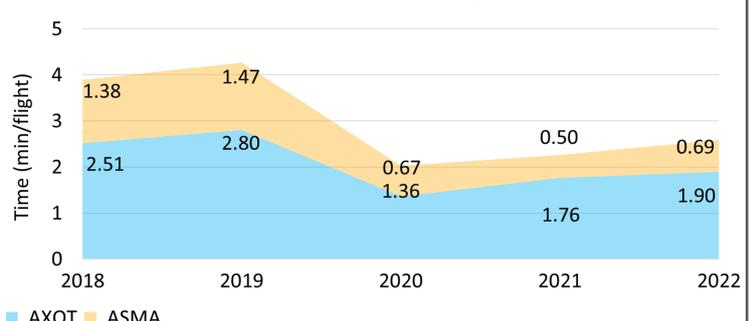
Czech Republic was not able to make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

Share of CDO per year



Czech Republic's CDO performance worsened in 2022 compared to 2021.

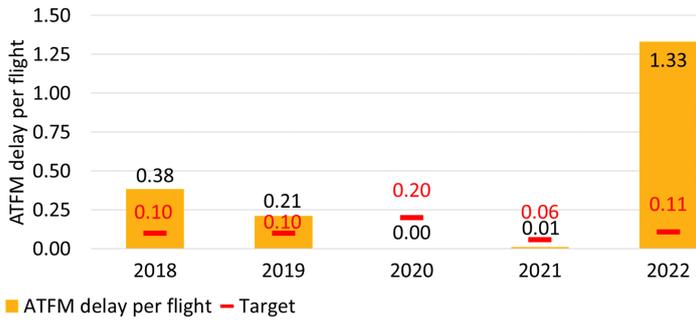
Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 2.59 minutes per flight either taxiing or holding at Václav Havel Prague airport.

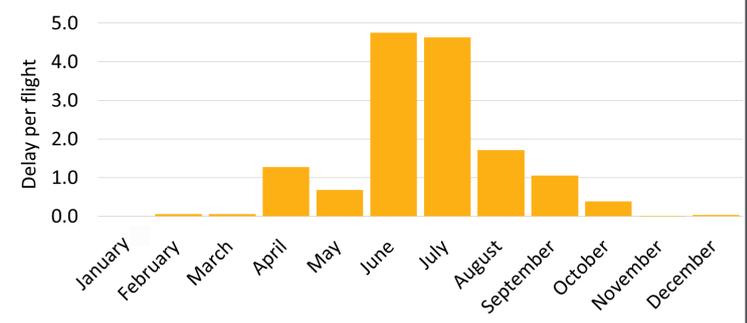
Capacity

ATFM delay per flight (min/flight)



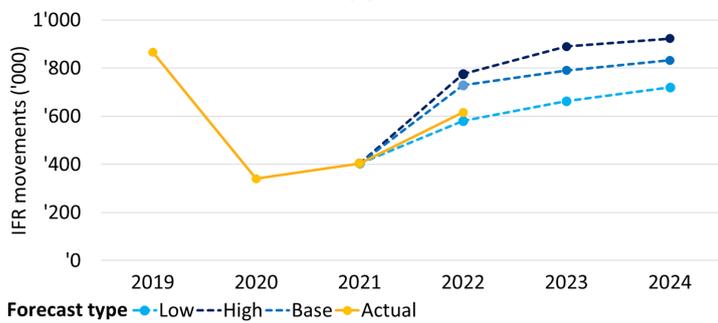
Delays in the Czech Republic increased by 1.32 minutes/flight year-on-year. Performance was worse than the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



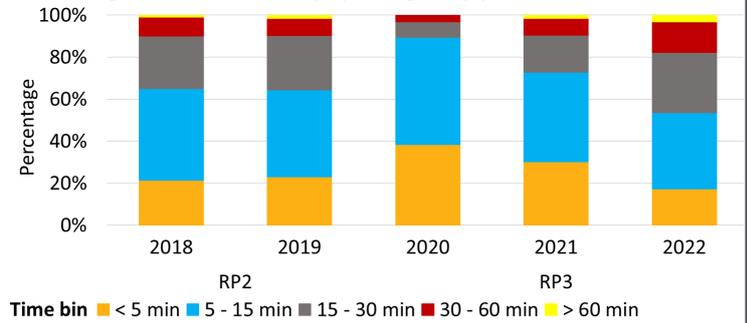
Delays were highest between April and September driven by the disruptions related to the system transition and the war impacts.

IFR movements and forecasts by year



IFR movements in the Czech Republic were 15% below the base scenario of the 2021 October forecast in 2022.

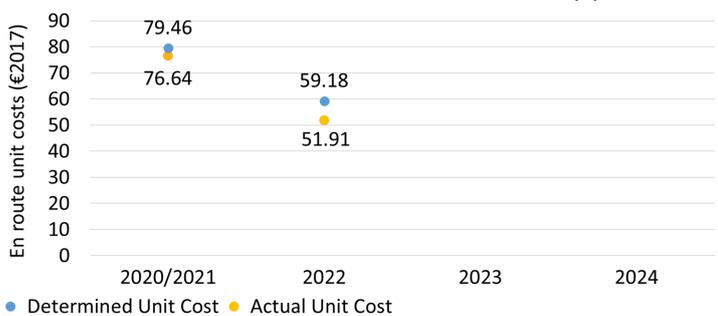
Percentage of en route delays per flight by year and time bin



The share of flights with delays longer than 15 minutes increased by 19 percentage points and was higher than pre-COVID values.

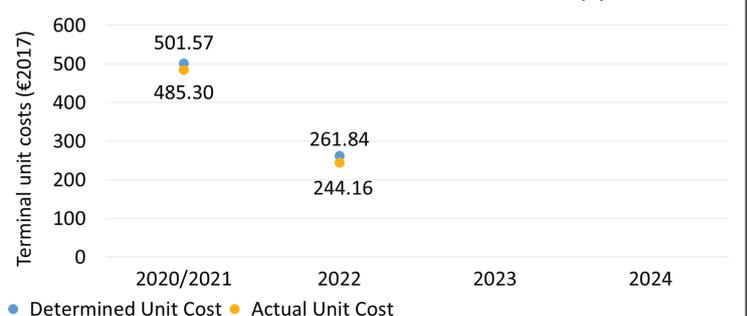
Cost-efficiency

En route actual unit cost and determined unit cost by year



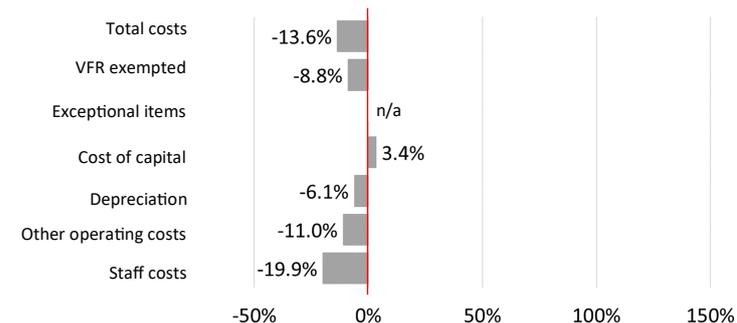
The 2022 en route actual unit cost was lower than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



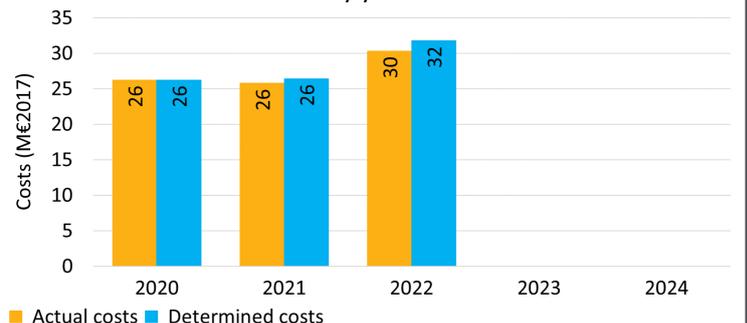
The 2022 terminal actual unit cost was lower than the determined unit cost.

% difference between 2022 actual costs and determined



In 2022, Czech Republic decreased costs by 14%, as all cost categories decreased except cost of capital.

Costs related to investments by year



ANS CR 2022 costs related in investments were 4.6% lower than determined.

Comments from the Performance Review Body:

Safety:

- NAVIAIR did not achieve the RP3 EoSM targets for three safety management objectives and is falling behind its planned maturity levels on safety assurance, while still in line on safety risk management. The NSA monitors continuously safety performance of NAVIAIR through its oversight function.
- Denmark did not record any separation minima infringements (SMIs) and the rate of runway incursions per movement has significantly dropped in 2022, remaining below the Union-wide average.
- NAVIAIR could improve its safety management by implementing automated safety data recording systems.

Environment:

- Denmark achieved a KEA performance of 1.23% compared to its target of 1.14% and did not contribute positively to achieving the Union-wide target.
- The NSA states that there were no specific reasons why the performance target was not achieved.
- SCR continued to deteriorate in 2022, while KEP remained similar to 2021.
- The share of CDO flights decreased by 2.15% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.52 to 0.78 min/flight, while additional taxi out time increased from 1.52 to 2.37 min/flight.

Capacity:

- Denmark registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.06.
- The average number of IFR movements was 25% below 2019 levels in Denmark in 2022.
- The number of ATCOs in OPS is planned to decrease by 12% in Copenhagen ACC by the end of RP3. The actual number in 2022 was above the plan due to a higher trainee pass ratio and additional ATCO resources from the military.

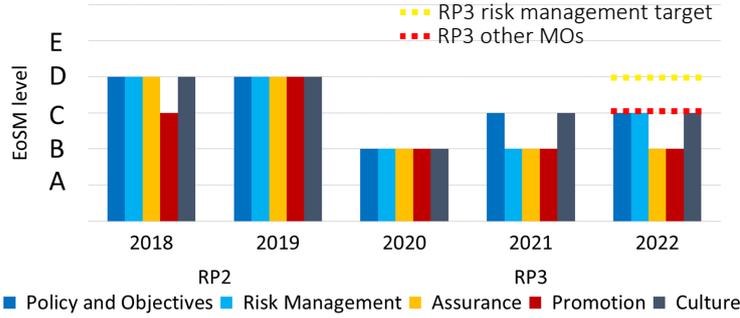
Cost-efficiency:

- The en route 2022 actual unit cost of Denmark was 72.63€₂₀₁₇, 13% higher than the determined unit cost (64.47€₂₀₁₇).³ The terminal 2022 actual unit cost was 169.47€₂₀₁₇, 3.9% higher than the determined unit cost (163.07€₂₀₁₇).
- The en route 2022 actual service units (1,282K) were 12% lower than the determined service units (1,455K).
- Despite variations within cost categories, the en route 2022 actual total costs were in line (-0.7M€₂₀₁₇, or -0.7%) with the determined. Even though actual costs in nominal terms were slightly higher than determined mainly due to higher staff costs, actual costs in real terms were slightly lower than determined as a result of higher-than-expected inflation.
- NAVIAIR spent 19.4M€₂₀₁₇ in 2022 related to costs of investments, 4.1% less than determined (20.2M€₂₀₁₇), due to postponed and delayed investments.
- The en route actual unit cost incurred by users in 2022 was 74.37€, while the terminal actual unit cost incurred by users was 186.19€.

³ The relevant figures for actual costs 2022 will be updated in the Monitoring Report 2023 following the correction from Denmark.

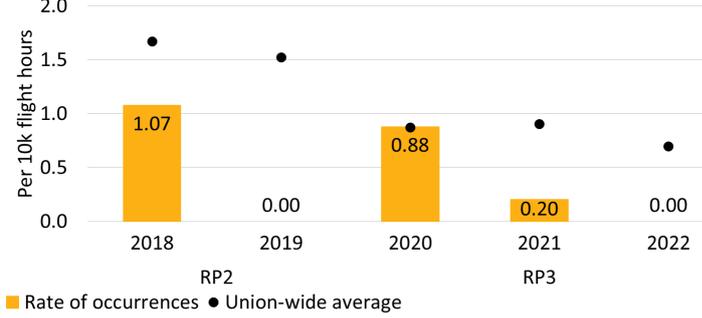
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



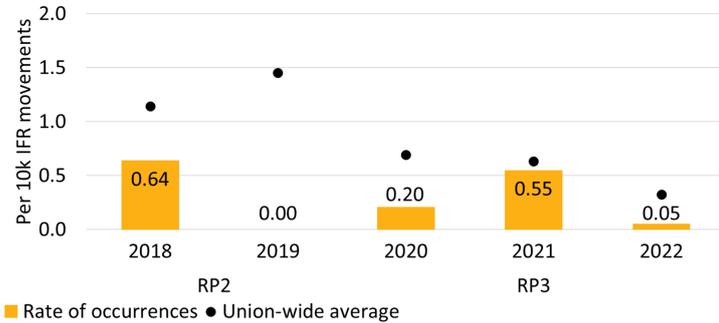
NAVAIR did not achieve the targets in three MOs, but it improved performance in two objectives in 2022.

Rate of separation minima infringement (SMI) by year



Denmark did not report any SMIs in 2022.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was below the Union-wide average.

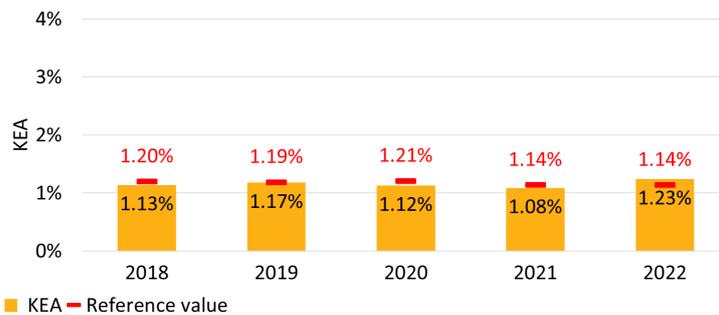
Use of automated safety data recording systems



Denmark does not use automated safety data recording systems for RIs or for SMIs.

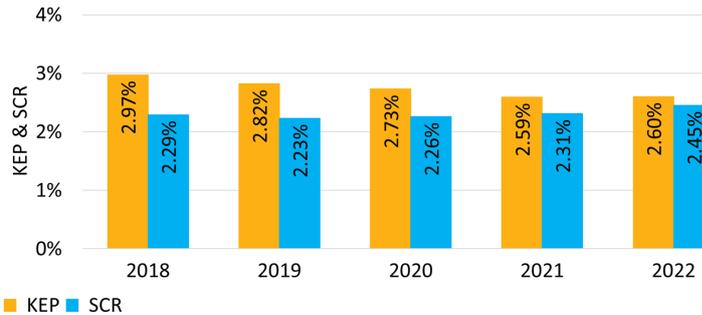
Environment

KEA performance



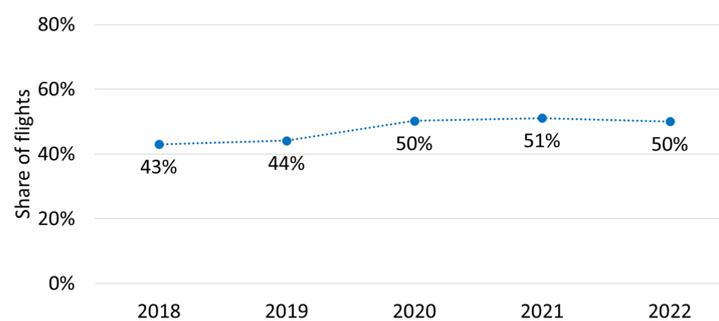
Denmark did not achieve its 2022 KEA target by 0.09 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



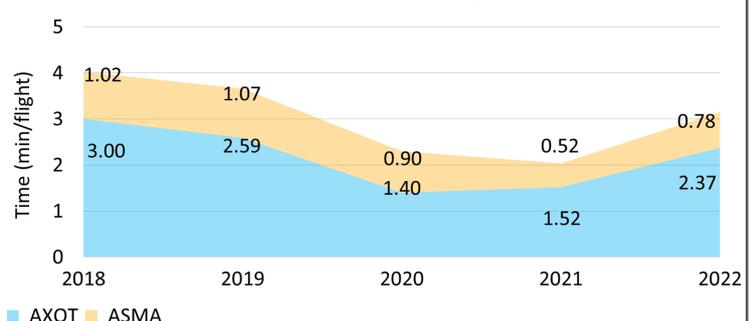
Planned routes were shorter in 2022, despite Denmark not making shorter constrained routes available to airspace users.

Share of CDO per year



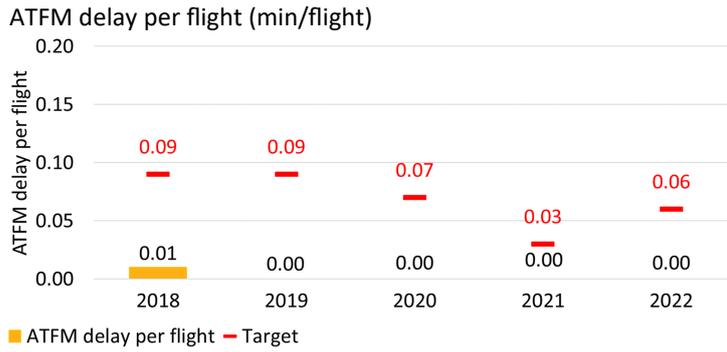
Denmark's CDO performance slightly worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

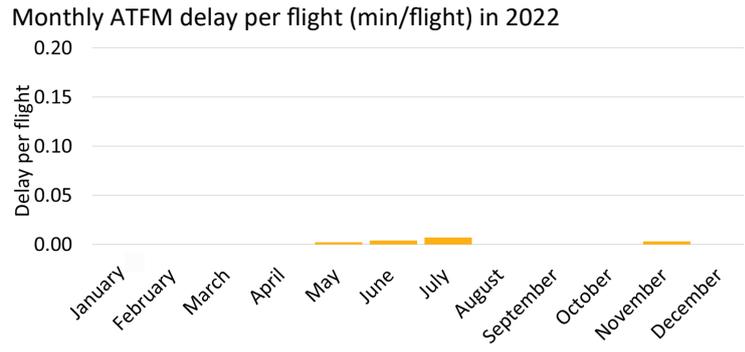


Terminal airspace users spent an additional 3.15 minutes per flight either taxiing or holding at Copenhagen Kastrup airport.

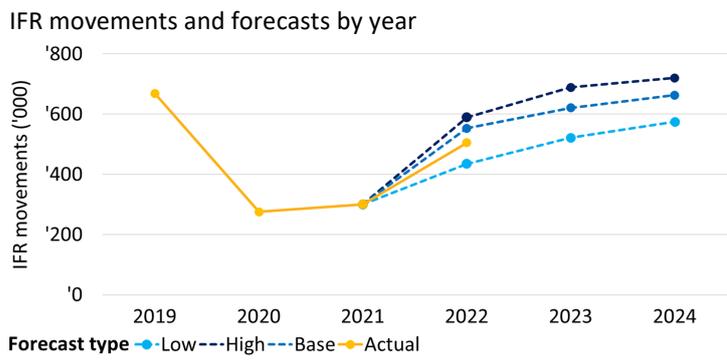
Capacity



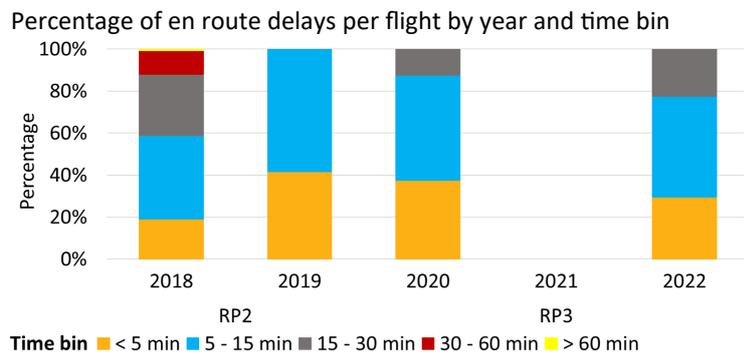
Delays in Denmark remained at zero minutes per flight. Performance in Denmark exceeded the local target in 2022.



There were only negligible ATFM delays in Denmark during July in 2022.

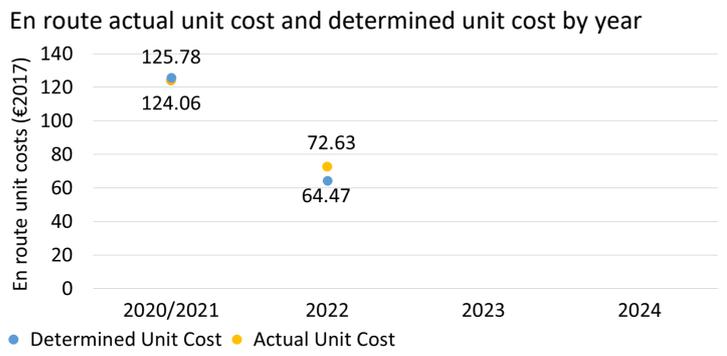


IFR movements in Denmark were 9% below the base scenario of the 2021 October forecast in 2022.

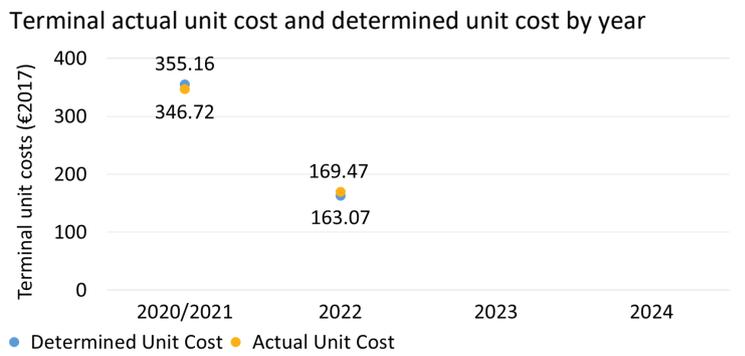


Low levels of delays should be considered when reviewing the graph.

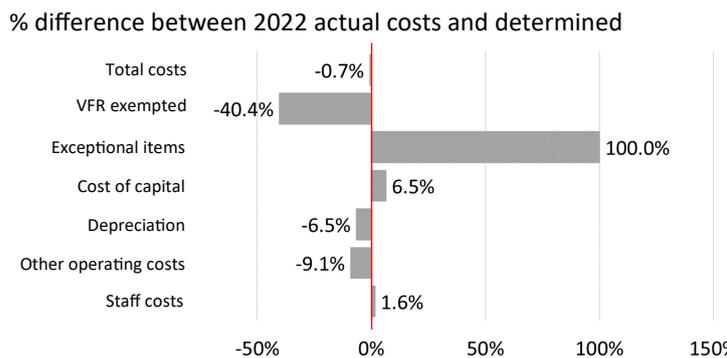
Cost-efficiency



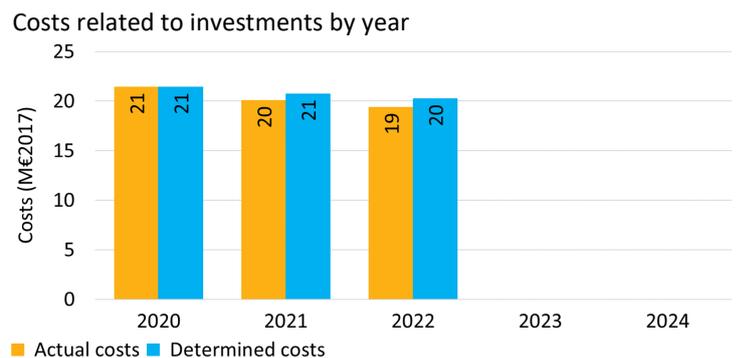
The 2022 en route actual unit cost was higher than the determined unit cost.



The 2022 terminal actual unit cost was higher than the determined unit cost.



In 2022, actual total costs were in line with determined, despite variations within cost categories.



NAVIAIR 2022 costs related to investments were 4.1% lower than determined, due to postponed and delayed investments.

Comments from the Performance Review Body:

Safety:

- Estonia already achieved the RP3 target levels at the start of the reference period but continued to improve its performance continuously. In 2022 Estonia reached the maximum maturity level for all five management objectives.
- Estonia recorded lower rates of occurrences in 2022 relative to 2021. Both rates were below the Union-wide average. The NSA closely monitored the rate of occurrences and assessed the effectiveness of implemented measures.
- EANS could improve its safety management by implementing automated safety data recording systems.

Environment:

- Estonia achieved a KEA performance of 5.46% compared to its target of 1.22% and did not contribute positively to achieving the Union-wide target.
- The NSA states that the target was not achieved because of the traffic to/from Kaliningrad which does not follow the optimal routes due to the restrictive measures following Russia's war of aggression against Ukraine.
- Both KEP and SCR deteriorated in comparison to 2021. The value of these two indicators is similar, meaning airspace users plan close to the shortest route available.
- The share of CDO flights increased by 18.6% compared to 2021.
- During 2022, additional time in terminal airspace decreased from 0.44 to 0.19 min/flight, while additional taxi out time increased from 1.03 to 1.39 min/flight.

Capacity:

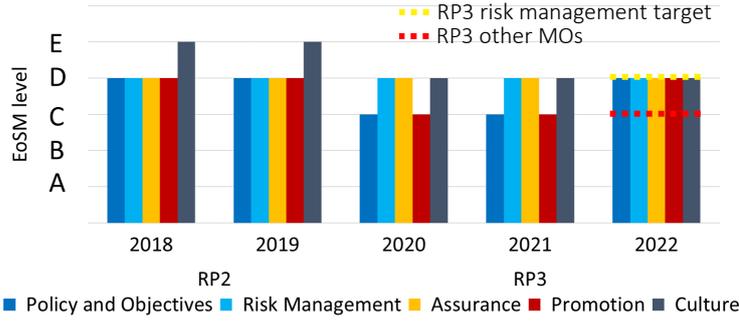
- Estonia registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.03.
- The average number of IFR movements was 38% below 2019 levels in Estonia in 2022.
- The number of ATCOs is not planned to change significantly by the end of RP3. The actual values of ATCOs in OPS remained below the plan in 2022.

Cost-efficiency:

- The en route 2022 actual unit cost of Estonia was 52.22€₂₀₁₇, 50% higher than the determined unit cost (34.80€₂₀₁₇). The terminal 2022 actual unit cost was 137.53€₂₀₁₇, 6.0% higher than the determined unit cost (129.77€₂₀₁₇).
- The en route 2022 actual service units (429K) were 41% lower than the determined service units (727K).
- In 2022, the en route actual total costs were 2.9M€₂₀₁₇ (-12%) lower than determined. The main contributor was the decrease in staff costs (-1.9M€₂₀₁₇, or -15%) as a result of the significantly higher inflation than planned, and other operating costs (-0.9M€₂₀₁₇, or -12%), due to cost-cutting measures to reduce losses.
- EANS spent 4.8M€₂₀₁₇ in 2022 related to costs of investments, in line with determined. However, depreciation costs decreased due to changes in implementation dates of investments, while cost of capital increased due to a significant higher financing through equity than planned.
- The en route actual unit cost incurred by users in 2022 was 66.39€, while the terminal actual unit cost incurred by users was 127.88€.

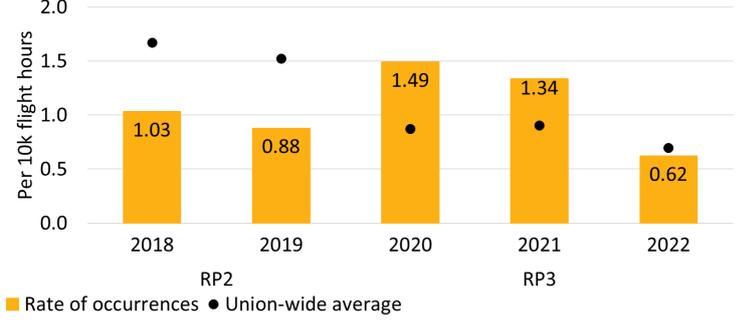
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



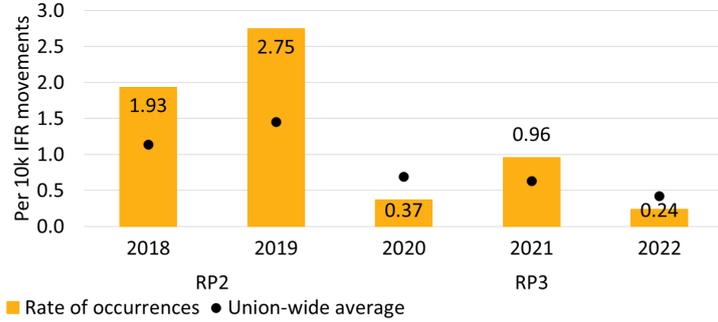
EANS exceeded the RP3 targets achieving level D in all MOs in 2022.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour decreased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was below the Union-wide average.

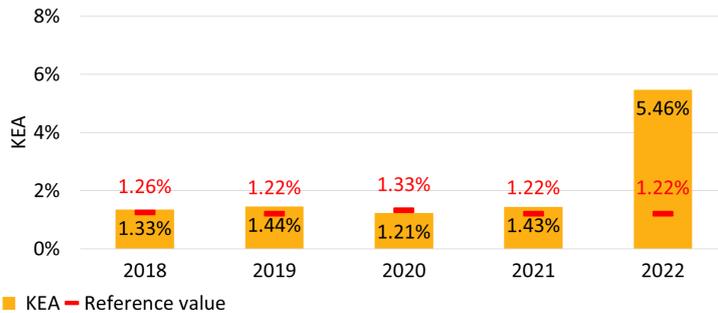
Use of automated safety data recording systems



Estonia does not use automated safety data recording systems for RIs or for SMIs.

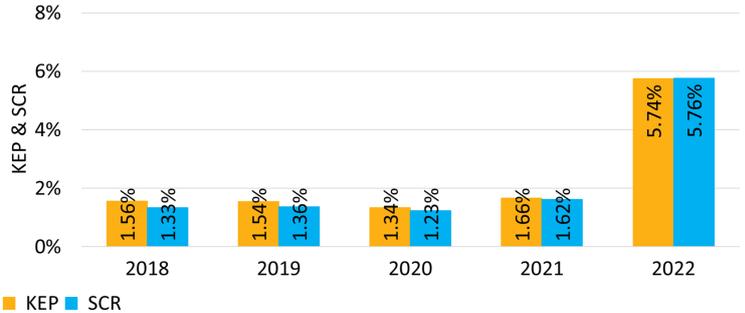
Environment

KEA performance



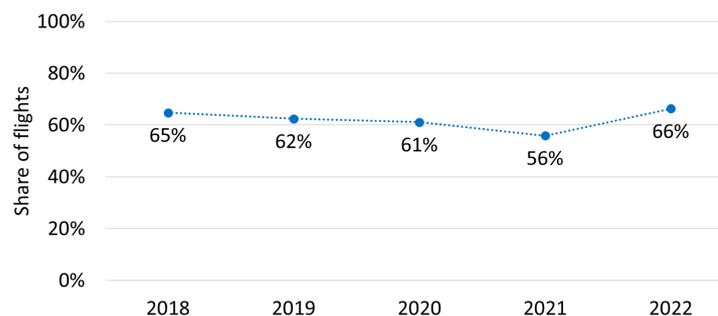
Estonia did not achieve its 2022 KEA target by 4.24 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



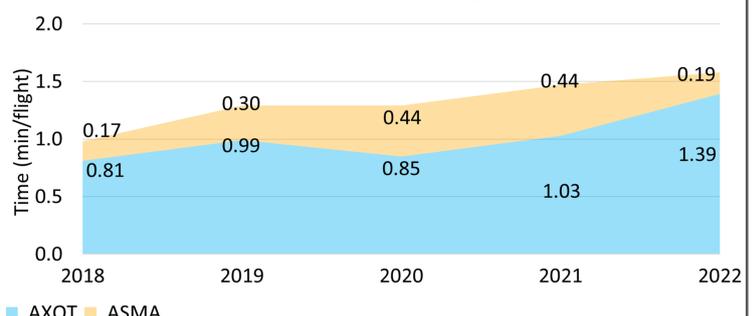
Planned routes were shorter in 2022, despite Estonia not making shorter constrained routes available to airspace users.

Share of CDO per year



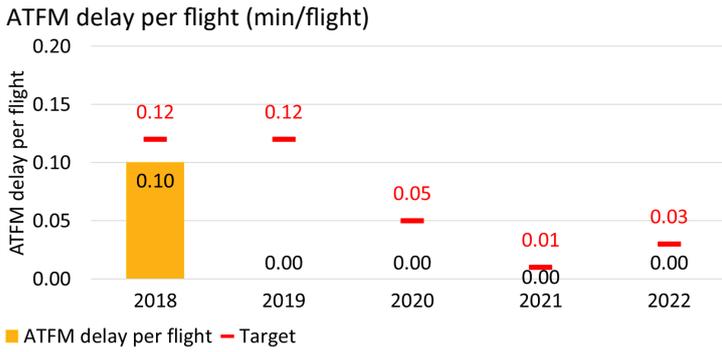
Estonia's CDO performance improved in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

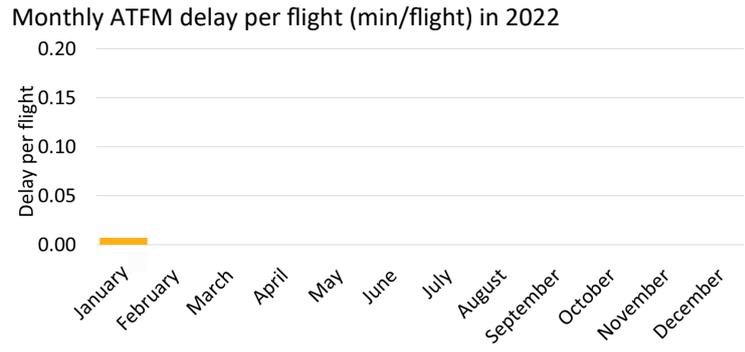


Terminal airspace users spent an additional 1.58 minutes per flight either taxiing or holding at Estonian airports.

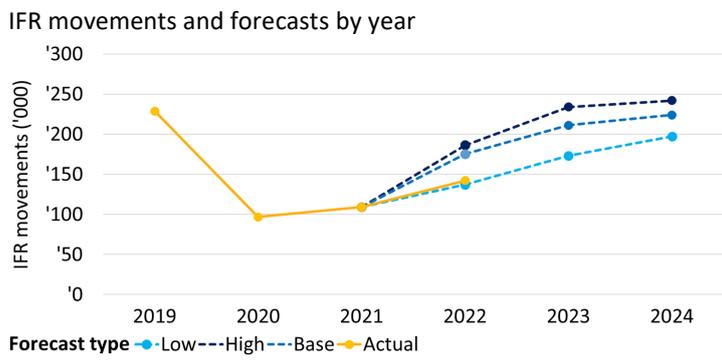
Capacity



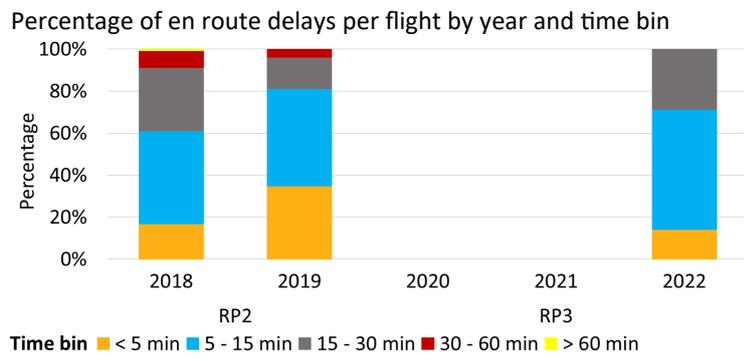
Delays in Estonia remained at zero minutes per flight. Performance in Estonia exceeded the local target in 2022.



There were only negligible ATFM delays in January in Estonia in 2022.

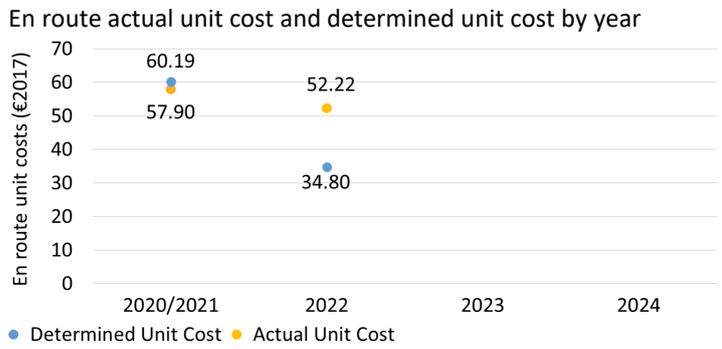


IFR movements in Estonia were 19% below the base scenario of the 2021 October forecast in 2022.

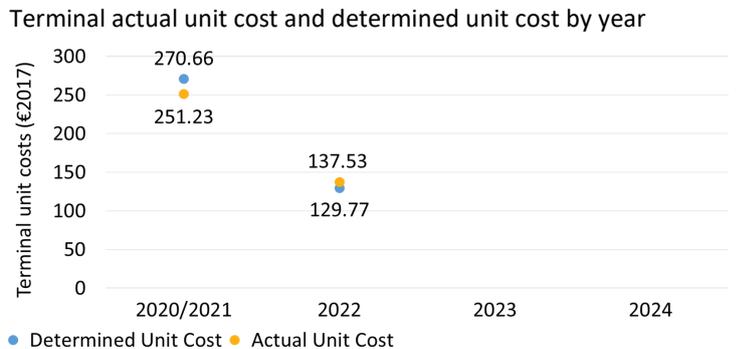


Low levels of delays should be considered when reviewing the graph.

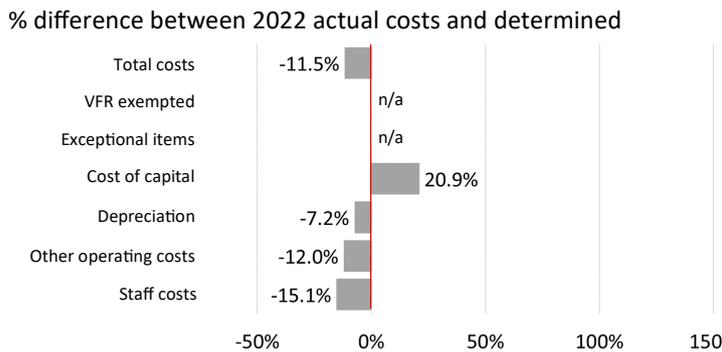
Cost-efficiency



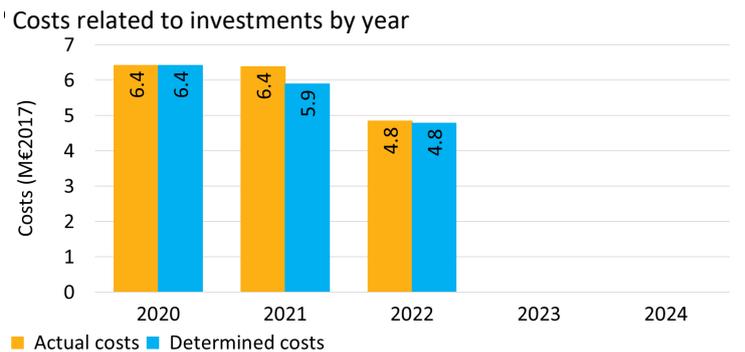
The 2022 en route actual unit cost was higher than the determined unit cost.



The 2022 terminal actual unit cost was higher than the determined unit cost.



In 2022, the actual costs were lower than determined, driven by lower staff and other operating costs.



Despite variations in depreciation and cost of capital, EANS 2022 costs related to investments were in line with the determined.

Comments from the Performance Review Body:

Safety:

- Fintraffic ANS achieved the RP3 EoSM targets in four management objectives and must improve in only one area: Safety risk management, which is currently under the review of the Finnish Transport and Communications Agency.
- Finland recorded a stable number of safety occurrences, with a lower rate of runway incursions and a decrease in the rate of separation minima infringements. Both rates were below the Union-wide average.
- Fintraffic ANS could improve its safety management by implementing automated safety data recording systems.

Environment:

- Finland achieved a KEA performance of 3.28% compared to its target of 0.88% and did not contribute positively towards achieving the Union-wide target.
- The NSA states that the performance target was not met due to the shift of the traffic flows between Russia and Kaliningrad and between Finland and Japan.
- Both KEP and SCR deteriorated in comparison with 2021. The value of these two indicators is similar, meaning airspace users plan close to the shortest route available.
- The share of CDO flights decreased by 1.09% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.60 to 0.68 min/flight, while additional taxi out time increased from 2.15 to 2.81 min/flight.

Capacity:

- Finland registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.05.
- The average number of IFR movements was 28% below 2019 levels in Finland in 2022.
- An 8% increase in the number of ATCOs in OPS is planned by the end of RP3. The actual value remains below the 2022 plan in Helsinki ACC.

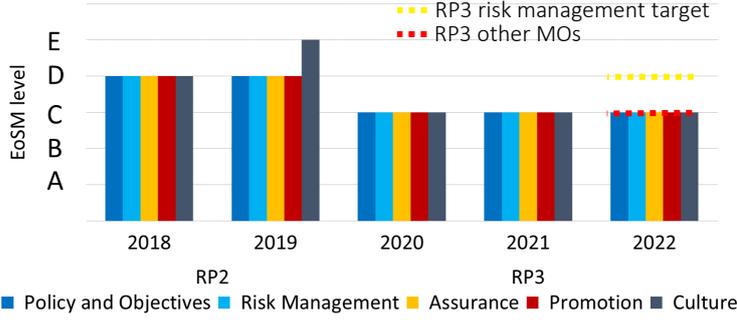
Cost-efficiency:

- The en route 2022 actual unit cost of Finland was 61.25€₂₀₁₇, 26% higher than the determined unit cost (48.63€₂₀₁₇).⁴ The terminal 2022 actual unit cost was 182.39€₂₀₁₇, 16% higher than the determined unit cost (157.04€₂₀₁₇).
- The en route 2022 actual service units (598K) were 33% lower than the determined (894K).
- The en route 2022 actual total costs were 6.9M€₂₀₁₇ lower (-16%) compared to determined, as all cost categories decreased.
- The main reason for the reduction was the lower staff costs (-3.5M€₂₀₁₇, or -15%), due to savings as a result of Russia's war of aggression against Ukraine. Other operating costs decreased (-2.1M€₂₀₁₇, or -13%) due to savings in several costs (e.g. lower travel costs, less purchase of equipment, etc.). Depreciation and cost of capital decreased due to postponing investments.
- Fintraffic ANS spent 5.6M€₂₀₁₇ in 2022 related to costs of investments, 16% lower than determined (6.7M€₂₀₁₇) due to postponed investments, mainly caused by cost-cutting measures as a result of Russia's war of aggression against Ukraine.
- The en route actual unit cost incurred by users in 2022 was 68.04€, while the terminal actual unit cost incurred by users was 225.77€.

⁴ The relevant figures for actual costs 2022 will be updated in the Monitoring Report 2023 following the correction from Finland.

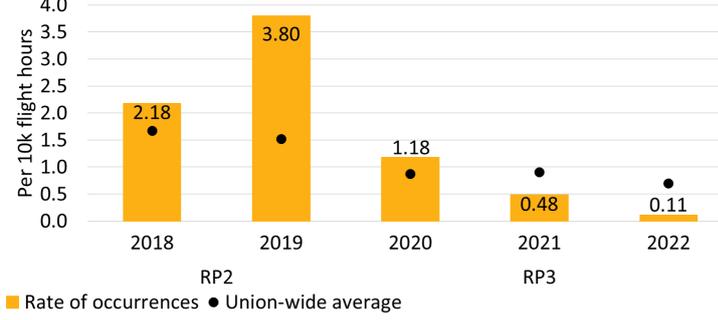
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



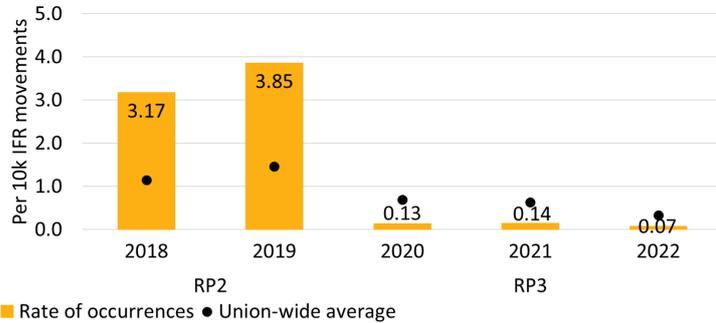
Fintraffic ANS did not achieve the RP3 target for safety risk management but achieved the RP3 targets for all other objectives.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour decreased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was below the Union-wide average.

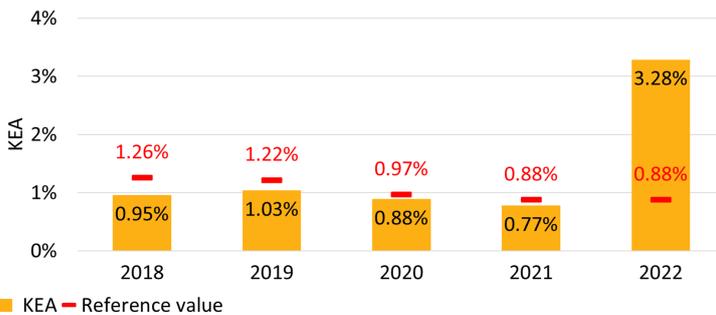
Use of automated safety data recording systems



Finland does not use automated safety data recording systems for RIs or for SMIs.

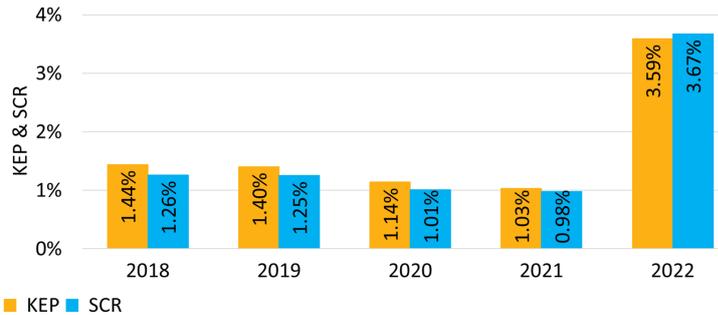
Environment

KEA performance



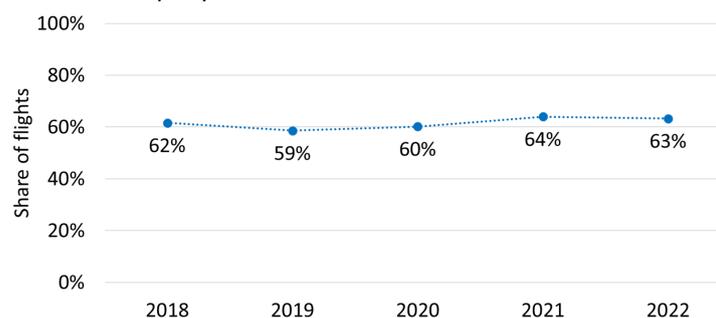
Finland did not achieve its 2022 KEA target by 2.40 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



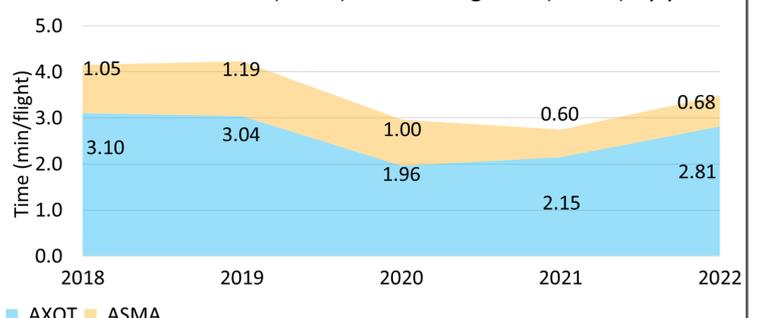
Planned routes were shorter in 2022, despite Finland not making shorter constrained routes available to airspace users.

Share of CDO per year



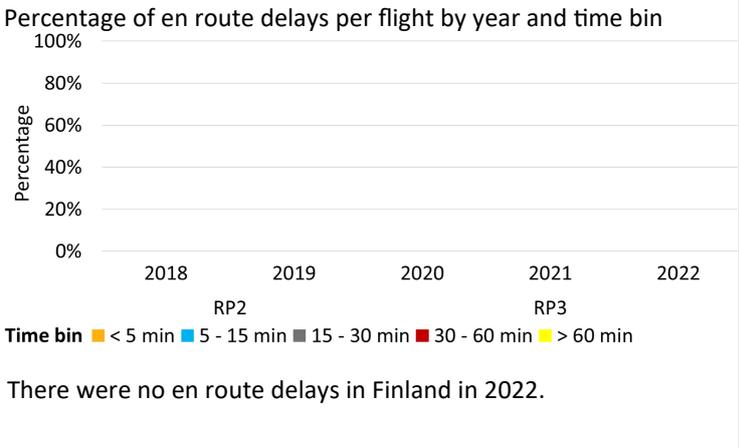
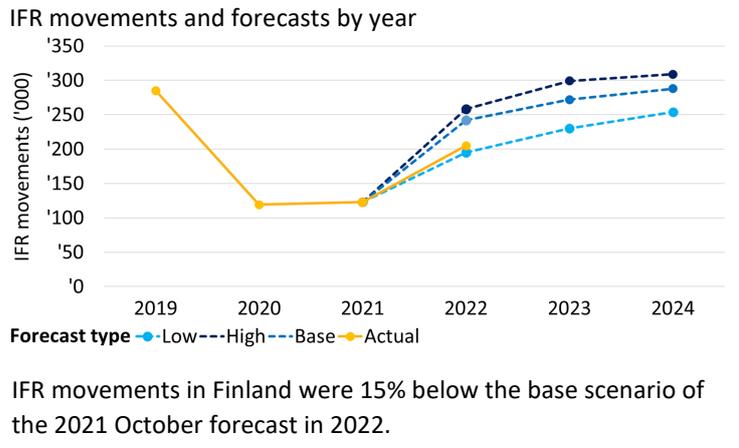
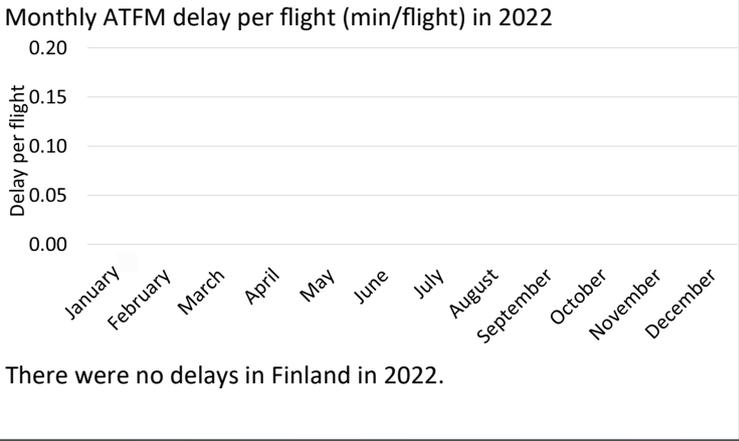
Finland's CDO performance improved in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

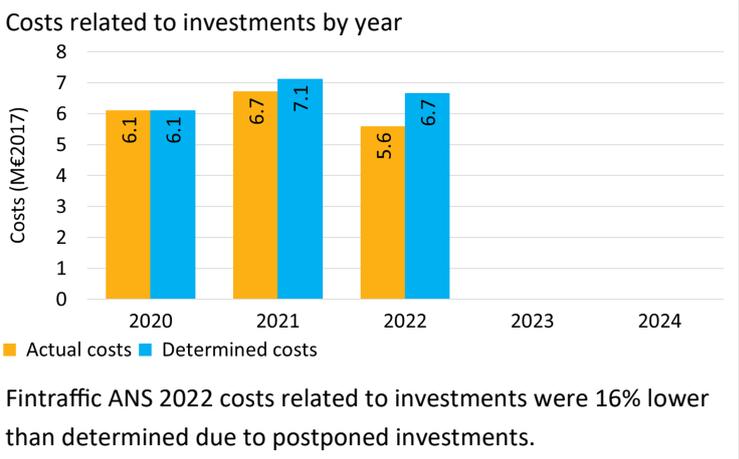
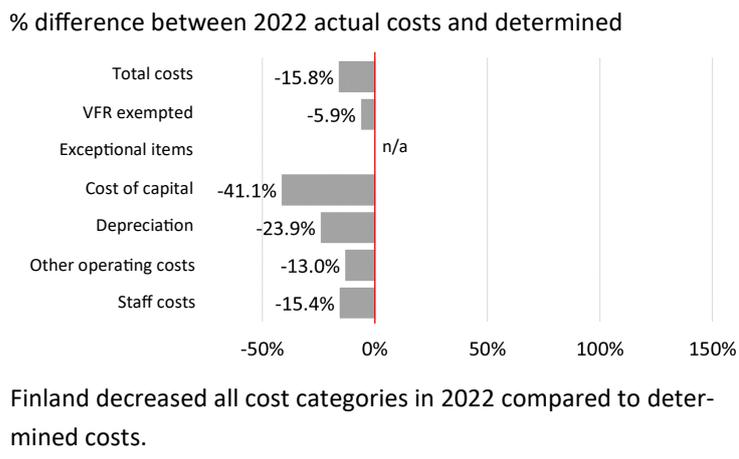
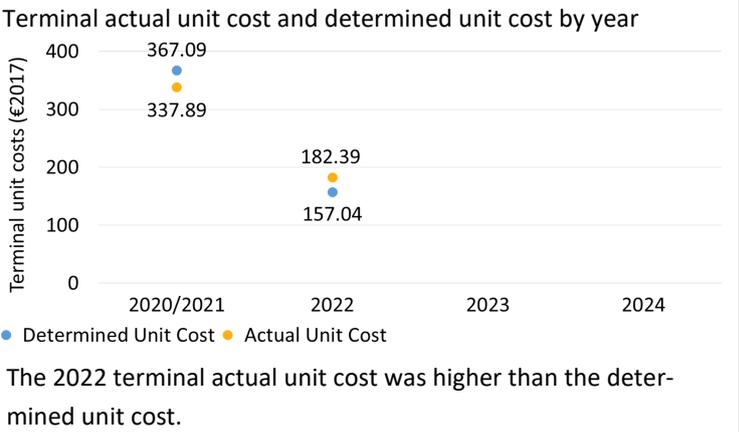
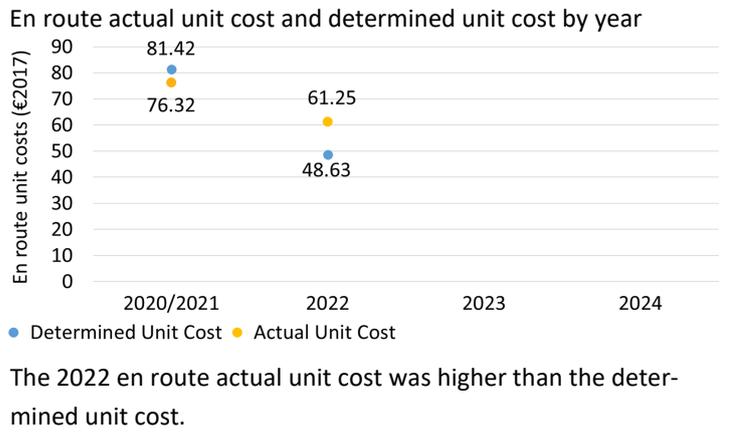


Terminal airspace users spent an additional 3.49 minutes per flight either taxiing or holding at Helsinki-Vantaa airport.

Capacity



Cost-efficiency



Comments from the Performance Review Body:

Safety:

- DSNA achieved the RP3 targets in 2021 and maintained this level in 2022.
- France recorded an increase in the rate of runway incursions relative to 2021 and a decrease in the rate of separation minima infringements. Although DSNA observed the decrease of the SMIs with ANS contribution in 2022 relative to 2021, the occurrence number was still high (304) with a rate of 1.5 SMIs per 10,000 flight hours. DSNA should continue assessing occurrences and risk mitigate them according to their SMS, if necessary.
- DSNA monitors and analyses the safety data using automated recording tools for separation minima infringements. The French NSA oversight addresses those elements.
- DSNA could improve its safety management by implementing automated safety data recording systems for runway incursions.

Environment:

- France achieved a KEA performance of 3.28% compared to its target of 2.83% and did not contribute positively towards achieving the Union-wide target. KEA performance has remained at similar levels since 2020.
- The NSA states that 2022 performance was affected by 4-FLIGHT implementation in Reims and Marseille ACCs, traffic volatility, weather issues and industrial action.
- Both KEP and SCR improved in 2022. The NSA states that 50% of the French airspace is now covered by FRA, thus improving KEP.
- The share of CDO flights decreased by 9.35% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.67 to 0.92 min/flight, while additional taxi out time increased from 1.65 to 2.35 min/flight.
- Additional taxi out time data for Marseille airport has not been reported for 2022 despite being subject to monitoring as per the Regulation.

Capacity:

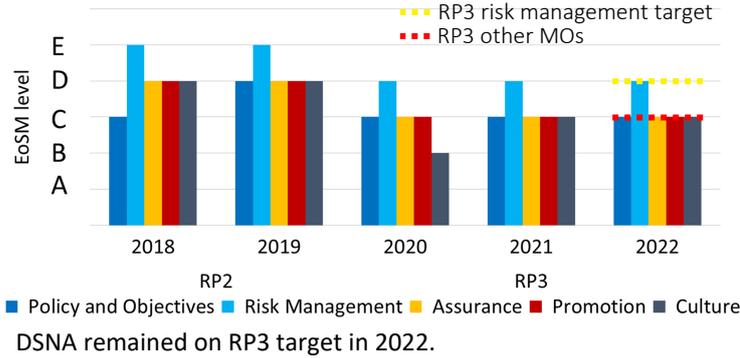
- France registered 1.22 minutes of average en route ATFM delay per flight during 2022 which has been adjusted to 1.49 during the post-ops adjustment process, thus not achieving the local target value of 0.25.
- The average number of IFR movements was 12% below 2019 levels in France in 2022.
- The number of ATCOs in OPS is expected to increase in Bordeaux, Marseille, Paris, and Reims ACCs, with no significant increase in Brest ACC. In 2022, the actual values remained below the planned ones in Bordeaux ACC, while they were above the plans in Brest, Marseille, and Reims ACCs. There has been a significant decrease in the number of ATCOs in OPS in Paris ACC, with the actual value being below the 2022 plan.
- Capacity performance in France was heavily affected by the system transition in Reims ACC.

Cost-efficiency:

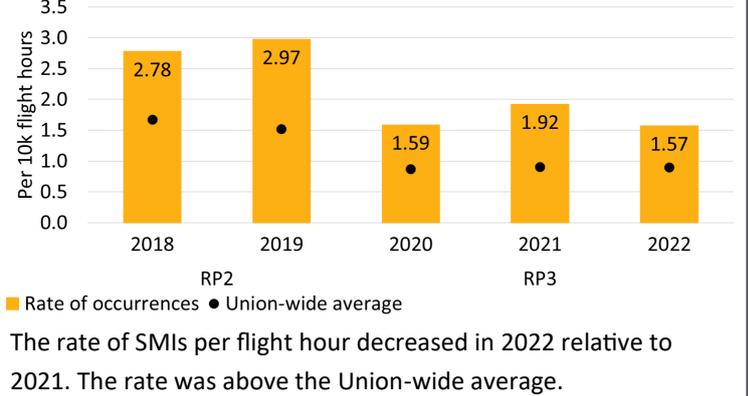
- The en route 2022 actual unit cost of France was 65.36€₂₀₁₇, 14% lower than the determined unit cost (76.14 €₂₀₁₇). The terminal zone 1 2022 actual unit cost was 93.63€₂₀₁₇, 18% lower than the determined unit cost (114.46€₂₀₁₇), while the terminal zone 2 2022 actual unit cost was 382.46€₂₀₁₇, 7.8% higher than the determined unit cost (354.93€₂₀₁₇).
- The en route 2022 actual service units (18,898K) were 11% higher than the determined service units (16,990K).
- In 2022, the en route actual total costs were 59M€₂₀₁₇ lower (-4.5%) than determined, mainly due to a reduction in staff cost (-35M€₂₀₁₇, or -4.8%), as a result of higher inflation than planned, and lower depreciation cost (-24M€₂₀₁₇, or -15%), mainly due to postponement of investments.
- DSNA spent 202M€₂₀₁₇ in 2022 related to costs of investments, 8.3% lower than determined (221M€₂₀₁₇) mainly due to the postponement of investments and some investment costs that have been transferred to OPEX costs.
- The en route actual unit cost incurred by users in 2022 was 77.04€, while the terminal zone 1 actual unit cost incurred by users was 191.48€ and 271.69€ for terminal zone 2.

Safety

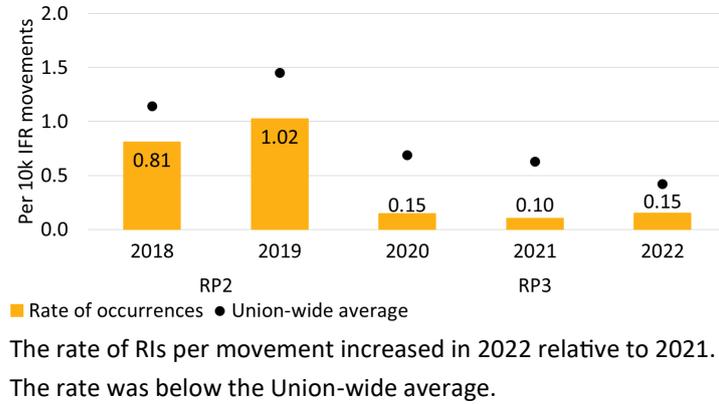
Main ANSP's effectiveness of safety management (EoS_M) by year



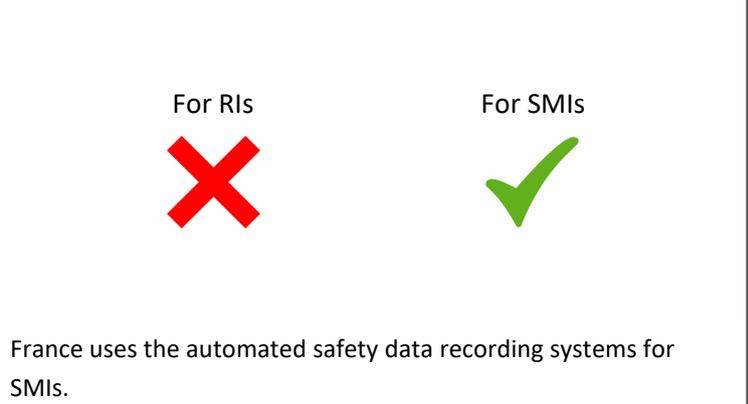
Rate of separation minima infringement (SMI) by year



Rate of runway incursions (RIs) by year

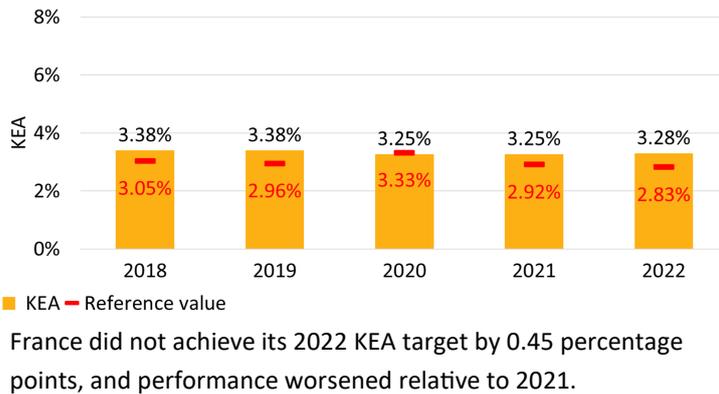


Use of automated safety data recording systems

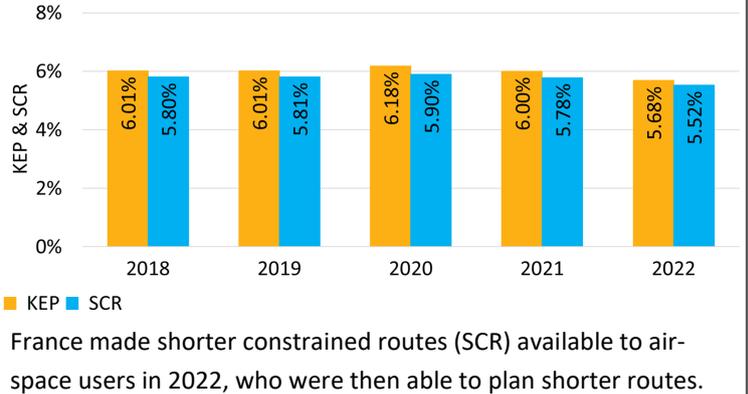


Environment

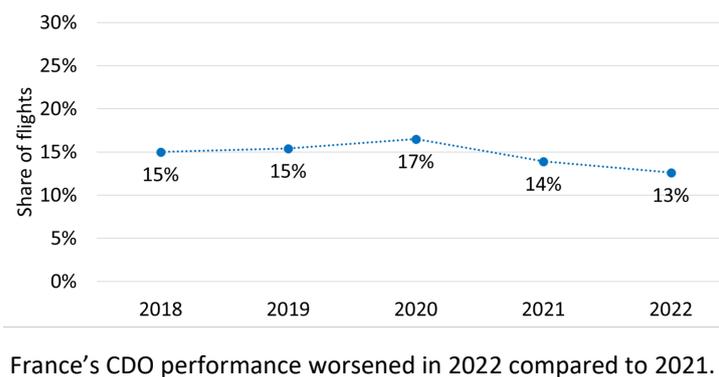
KEA performance



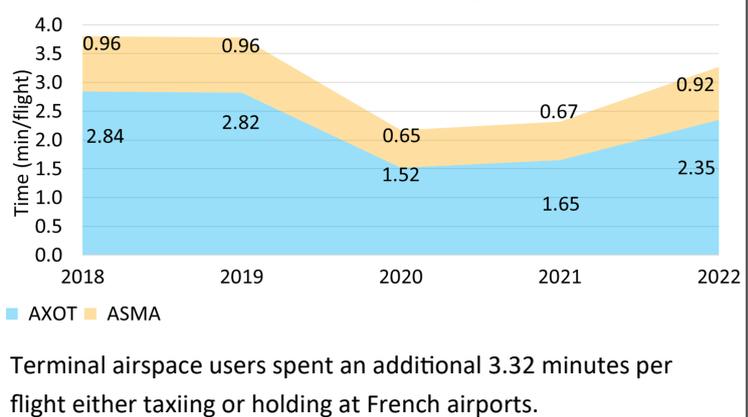
KEP and SCR performance



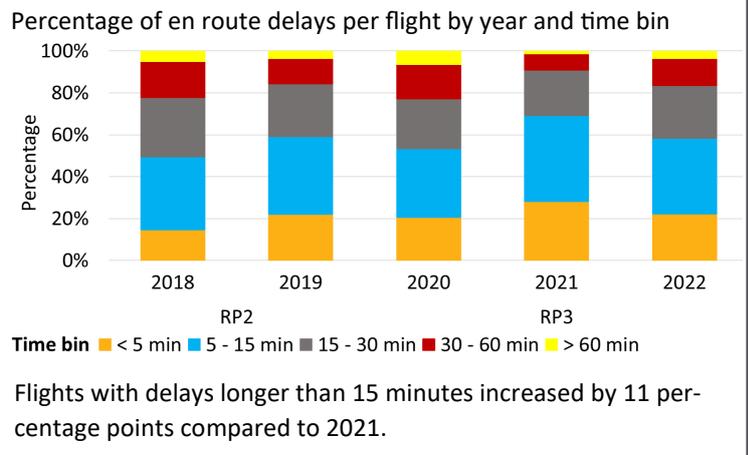
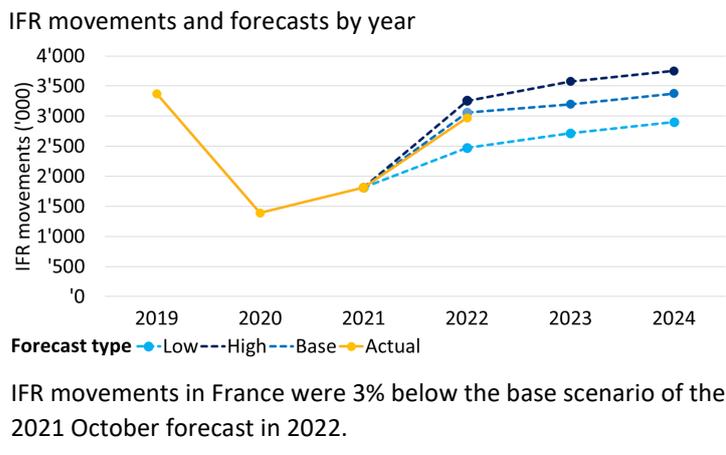
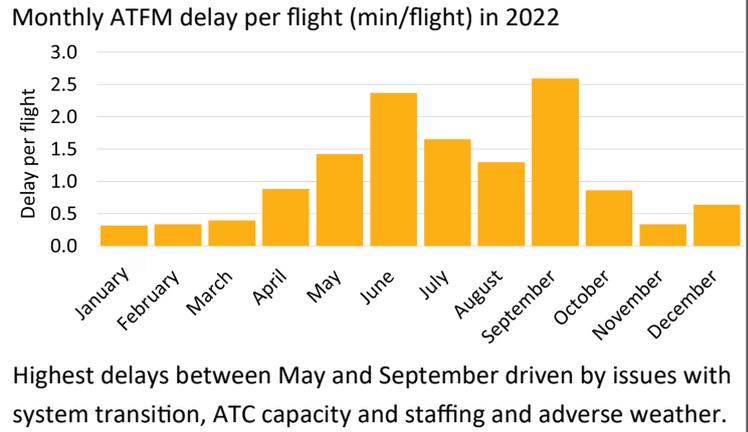
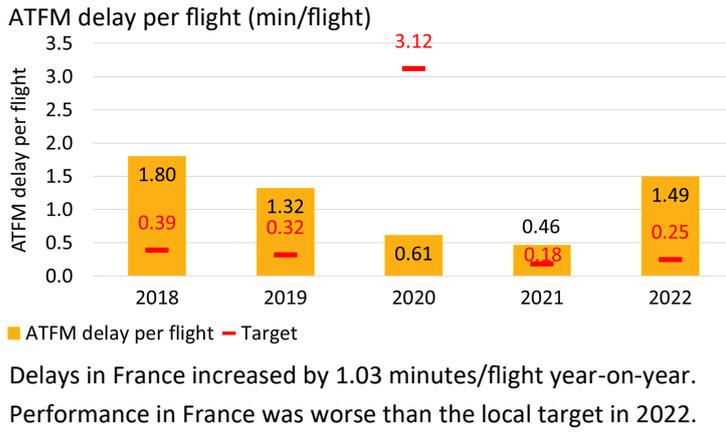
Share of CDO per year



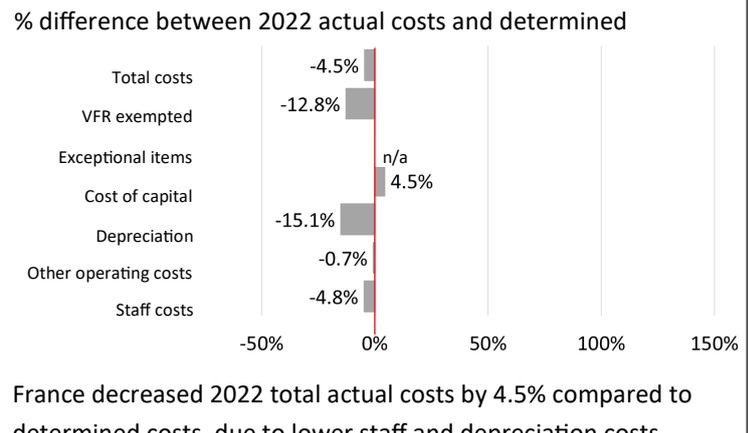
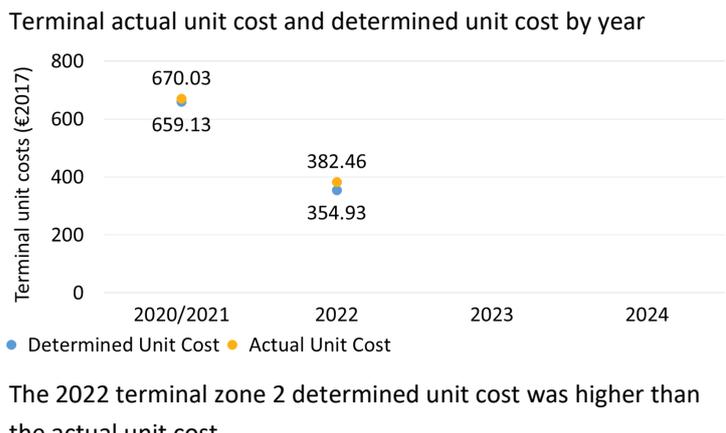
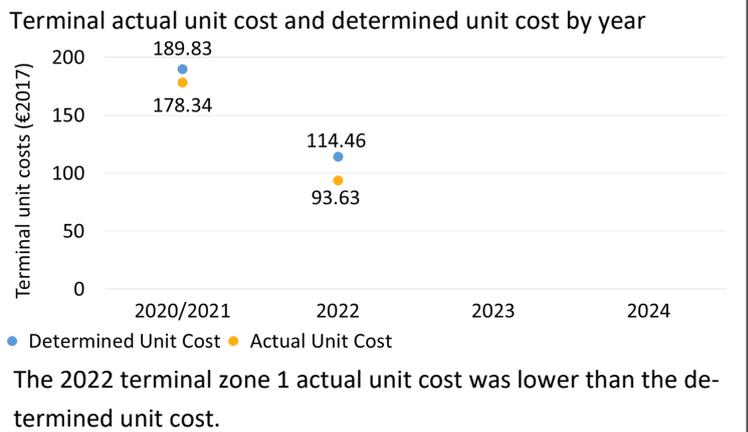
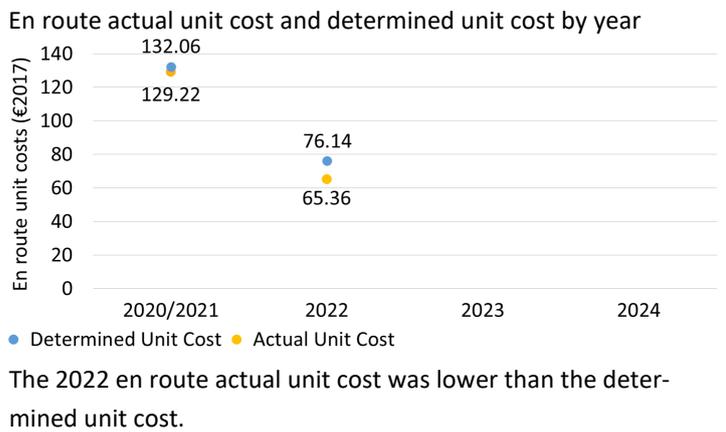
Additional taxi out time (AXOT) and holding time (ASMA) by year



Capacity

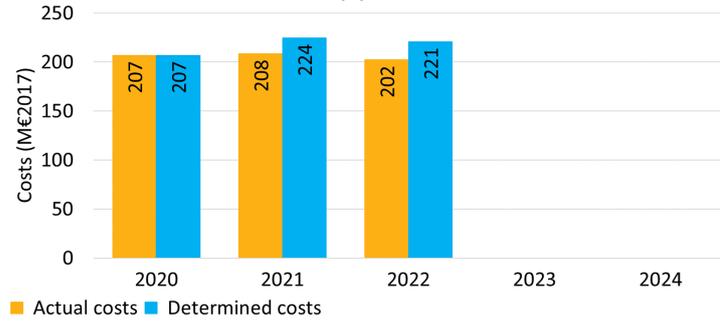


Cost-efficiency



Cost-efficiency

Costs related to investments by year



DSNA 2022 costs related to investments were 8.3% lower than determined.

Comments from the Performance Review Body:

Safety:

- DFS achieved the RP3 EoS targets in 2021, earlier than planned and retained this level in 2022. DFS implemented harmonised measures to ensure continuous improvement of safety performance.
- Germany reported an increase in the rate of separation minima infringements and a comparable rate of runway incursion in 2022 relative to 2021. 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 could improve its safety management by implementing automated safety data recording systems.

Environment:

- Germany achieved a KEA performance of 2.76% compared to its target of 2.30% and did not contribute positively towards achieving the Union-wide target.
- The NSA states that flight efficiency deteriorated after the pandemic, due to increased traffic and establishment of military corridors following Russia's war of aggression against Ukraine.
- Both KEP and SCR deteriorated in comparison with 2021.
- The share of CDO flights decreased by 21.60% compared to 2021.
- During 2022, additional time in terminal airspace decreased from 1.14 to 1.08 min/flight, while additional taxi out time increased from 1.85 min/flight to 1.87 min/flight.

Capacity:

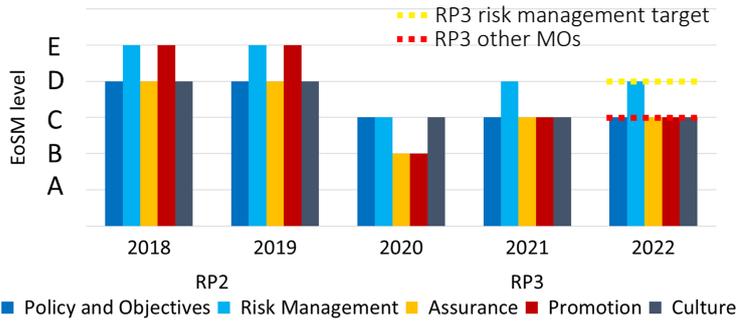
- Germany registered 2.28 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 2.27 during the post-ops adjustment process.
- Average en route ATFM delay per flight was further adjusted to 2.20 minutes per flight due to the exceptional event related to Russia's war of aggression against Ukraine, still not achieving the local target value of 0.27.
- The average number of IFR movements was 20% below 2019 levels in Germany in 2022.
- The number of ATCOs in OPS is expected to increase significantly in Bremen and Karlsruhe ACCs and to increase only slightly in Langen and Munich. The number of ATCOs in OPS remained unchanged in Bremen ACC, and in Karlsruhe UAC there was an increase but actual values in both ACCs remained below the plans in 2022. In Langen and Munich, there was an increase in the number of ATCOs in OPS, with the actual values being higher than the 2022 plans.
- The planned number of ATCOs in OPS in Karlsruhe remained below the level required to offer sufficient capacity.

Cost-efficiency:

- The en route 2022 actual unit cost of Germany was 70.65€₂₀₁₇, 4.6% higher than the determined unit cost (67.52€₂₀₁₇). The terminal 2022 actual unit cost was 258.18€₂₀₁₇, 19% higher than the determined unit cost (216.36€₂₀₁₇).
- The en route 2022 actual service units (12,519K) were 8.2% lower than the determined service units (13,644K).
- In 2022, the en route actual total costs were 37M€₂₀₁₇ lower (-4.0%) than determined. It was mainly attributable to the reduction in staff costs (-62M€₂₀₁₇, or -9.0%) mainly due to less full-time equivalents than planned. However, the decrease was partially offset by the significant increase in cost of capital (+37M€₂₀₁₇, or +198%).
- DFS spent 107M€₂₀₁₇ in 2022 related to costs of investments, 6.5% more than determined (100M€₂₀₁₇), driven by the substantial increase in cost of capital. The NSA explained that it is stemming from the negative development of commercial papers. At the same time the net book value of fixed assets decreased by -4.0%. The PRB invites the NSA to clarify the reasons and impact of these commercial papers and, if eligible, to present the costs in line with the Regulation.
- The en route actual unit cost incurred by users in 2022 was 79.70€, while the terminal actual unit cost incurred by users was 278.54€.

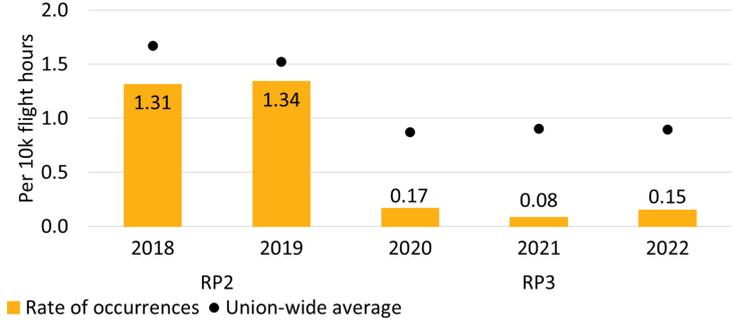
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



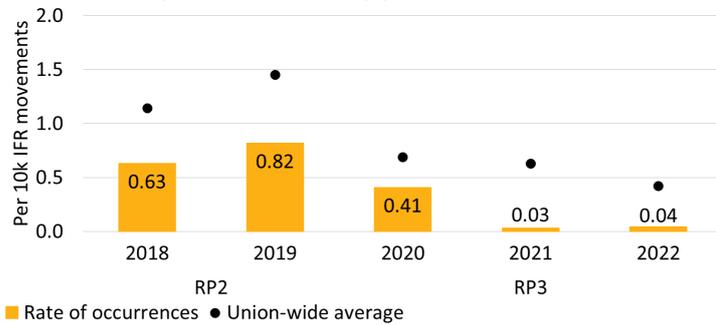
DFS achieved the RP3 targets for all five MOs in 2021 and retained these in 2022.

Rate of separation minima infringement (SMI) by year



The rate of SMIs increased in 2022 relative to 2021 and was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs was at comparable level in 2022 relative to 2021 and was below the Union-wide average.

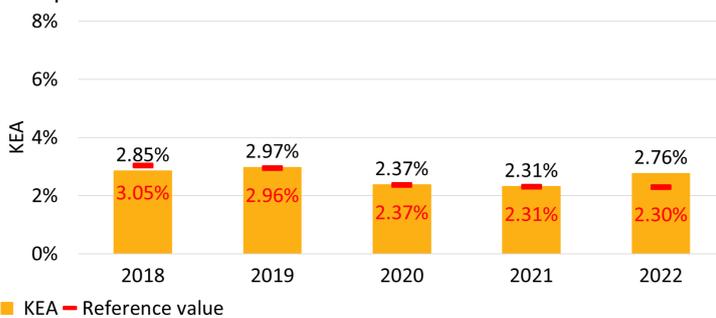
Use of automated safety data recording systems



Germany does not use automated safety data recording systems for RIs or for SMIs.

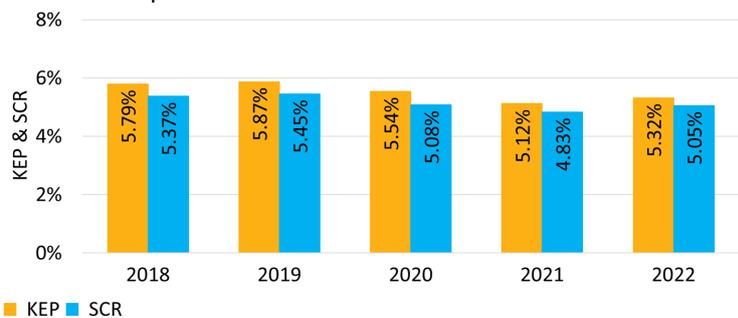
Environment

KEA performance



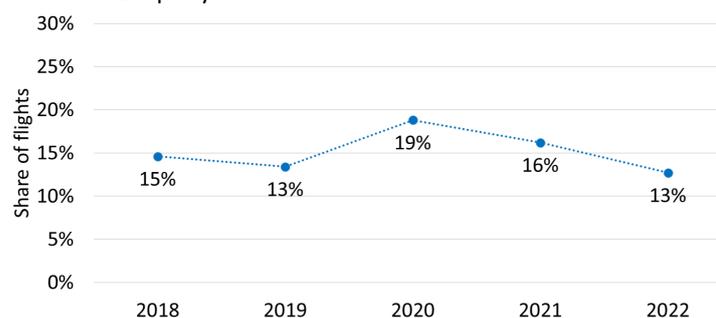
Germany did not achieve its 2022 KEA target by 0.46 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



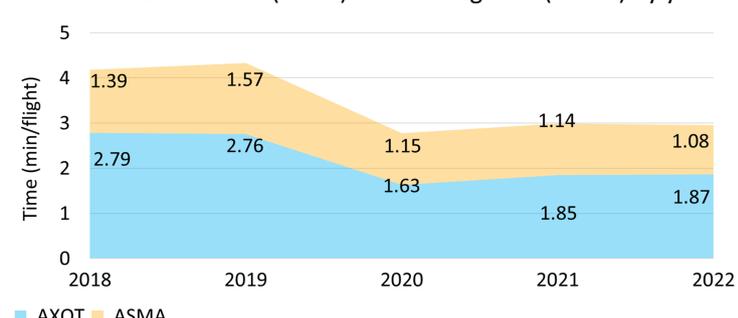
Germany was not able to make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

Share of CDO per year



Germany's CDO performance worsened in 2022 compared to 2021 and is still low.

Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 2.85 minutes per flight either taxiing or holding at German airports.

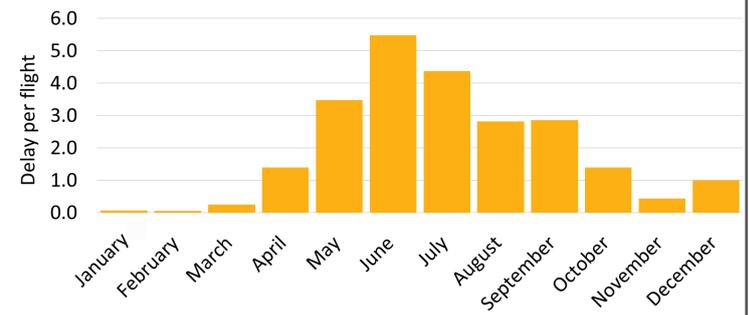
Capacity

ATFM delay per flight (min/flight)



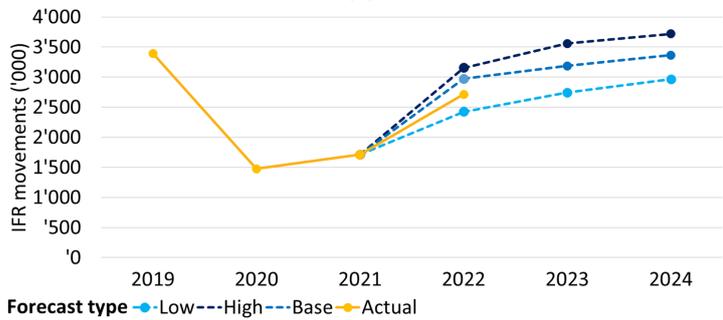
Delays in Germany increased by 1.98 minutes/flight year-on-year. Performance in Germany was worse than the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



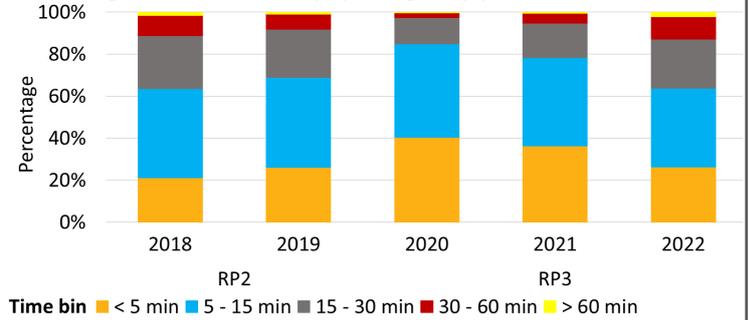
Delays were high from April until the end of the year driven by ATC capacity, adverse weather, and non-ATC disruptions.

IFR movements and forecasts by year



IFR movements in Germany were 9% below the base scenario of the 2021 October forecast in 2022.

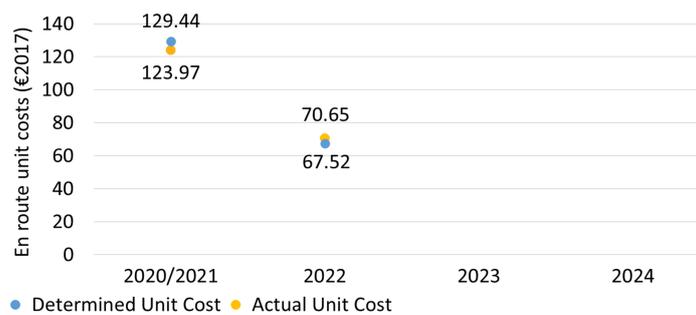
Percentage of en route delays per flight by year and time bin



The share of delayed flights with delays longer than 15 minutes increased by 15 percentage points compared to 2021.

Cost-efficiency

En route actual unit cost and determined unit cost by year



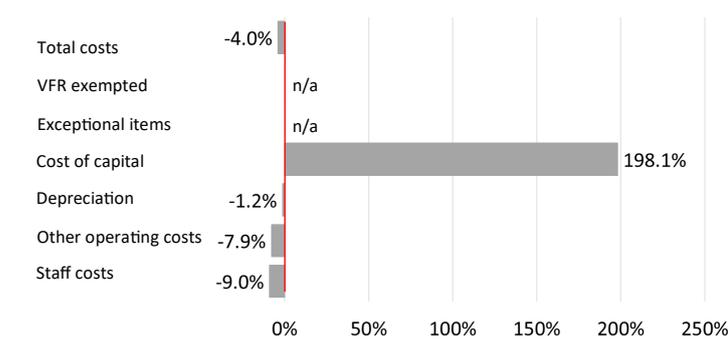
The 2022 en route actual unit cost was higher than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



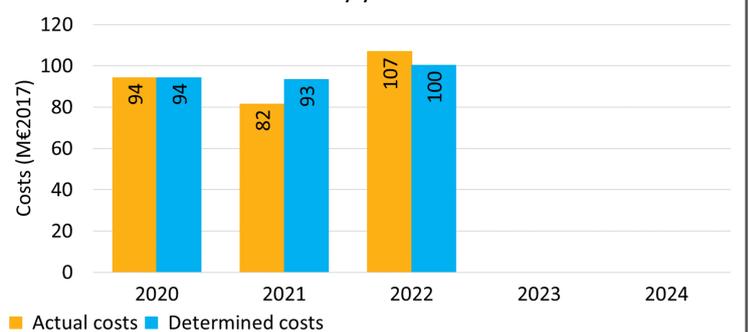
The 2022 terminal actual unit cost was higher than the determined unit cost.

% difference between 2022 actual costs and determined



In 2022, total costs decreased despite the significant increase in cost of capital.

Costs related to investments by year



DFS 2022 costs related to investments were 6.5% higher than planned, driven by the substantial increase in cost of capital.

Comments from the Performance Review Body:

Safety:

- HASP achieved RP3 EoSM targets in four management objectives and is required to improve only in the safety risk management area. This is in line with its planned maturity levels.
- Over 2022, HASP implemented some improvements to its Safety & Security Management System, focussing on Change Management and Occurrence Reporting Procedures.
- Greece recorded a decrease in the rate of runway incursions but an increase of the rate of separation minima infringements in 2022. The occurrences and the effectiveness of mitigations were closely monitored and analysed by the NSA.
- HASP could improve its safety management by implementing automated safety data recording systems for occurrences.

Environment:

- Greece achieved a KEA performance of 2.33% compared to its target of 1.92% and did not contribute positively towards achieving the Union-wide target. KEA has improved in comparison to 2021.
- The NSA states that the target was missed mainly due to military activity causing traffic to diverge from optimal routes. It is also mentioned that FRA is not yet applied 24 hours per day.
- Both KEP and SCR improved in comparison with 2021 and, according to the NSA, this is mainly because HASP implemented a new airway in 2022.
- The share of CDO flights remained stable in 2022 compared to 2021.
- During 2022, additional time in terminal airspace increased from 1.15 to 1.37 min/flight, while additional taxi out time increased from 2.12 to 3.18 min/flight.

Capacity:

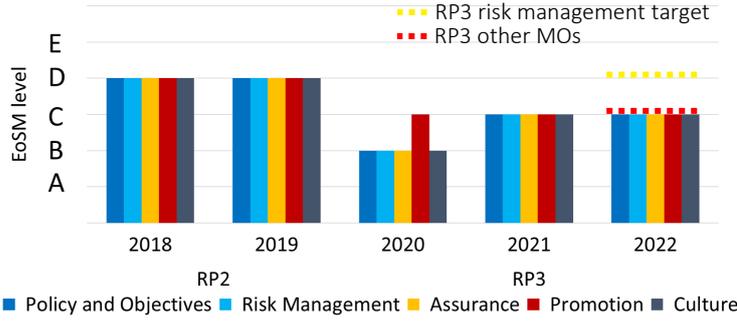
- Greece registered 0.15 minutes of average en route ATFM delay per flight during 2022, thus not achieving the local target value of 0.14.
- The average number of IFR movements was 1% above 2019 levels in Greece in 2022.
- Traffic is expected to grow dynamically in RP3. The number of ATCOs in OPS is expected to increase by 33% by the end of RP3, however, the actual number of ATCOs in OPS decreased and remained significantly below the 2022 plan.

Cost-efficiency:

- The en route 2022 actual unit cost of Greece was 23.38€₂₀₁₇, 16% lower than the determined unit cost (27.86€₂₀₁₇). The terminal 2022 actual unit cost was 150.36€₂₀₁₇, 3.4% lower than the determined unit cost (155.70€₂₀₁₇).
- The en route 2022 actual service units (6,416K) were 9.5% higher than the determined service units (5,861K).
- The en route 2022 actual total costs were 13M€₂₀₁₇ lower (-8.1%) than determined, mainly due to lower staff cost (-9.8M€₂₀₁₇, or -7.8%). The NSA only explained that HCCA is understaffed and that the staff compensation has not been fully implemented yet. Other operating costs also decreased significantly (-3.5M€₂₀₁₇, or -11%), no explanation was provided by the NSA.
- HASP spent 1.7M€₂₀₁₇ in 2022 related to costs of investments, 19% less than determined (2.1M€₂₀₁₇), the NSA noted that it is due to a slight delay in an investment project.
- As for the previous monitoring year, the discrepancies regarding costs of investments were significant. The PRB invites the NSA to analyse the discrepancies, identify their reasons, and request the Member State to take immediate, adequate, and proportionate action to ensure the implementation of the investment plans to avoid future capacity gaps.
- The en route actual unit cost incurred by users in 2022 was 28.67€, while the terminal actual unit cost incurred by users was 144.44€.

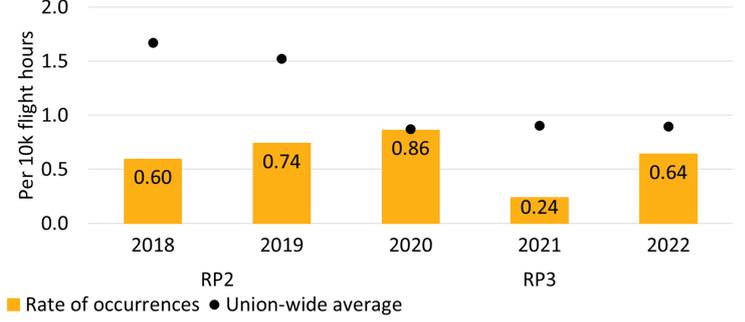
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



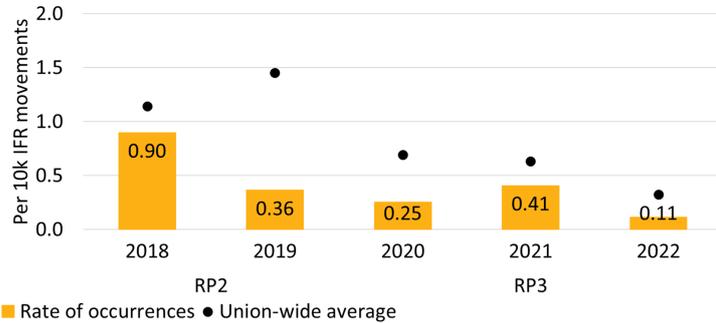
HASP did not achieve the RP3 target for safety risk management but had already achieved the targets for all other MOs in 2021.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour increased in 2022 relative to 2021 and was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021 and was below the Union-wide average.

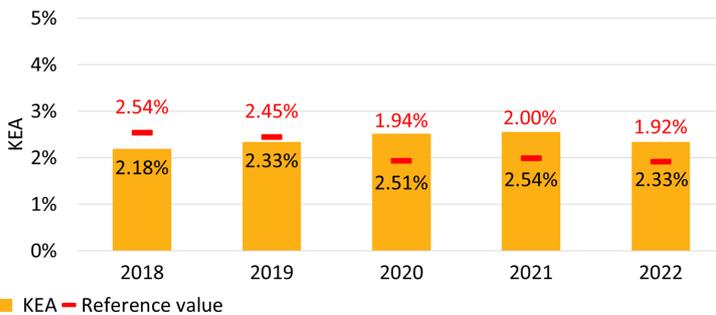
Use of automated safety data recording systems



Greece does not use automated safety data recording systems for RIs or for SMIs.

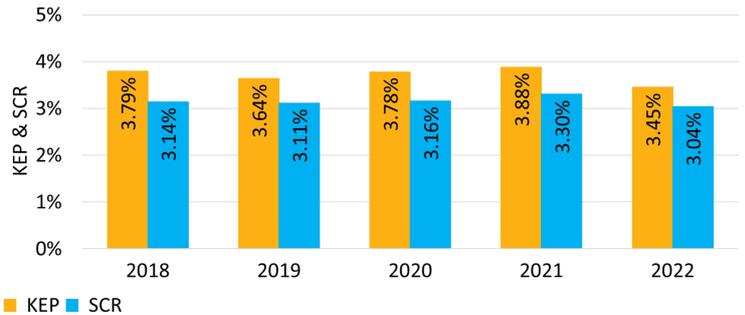
Environment

KEA performance



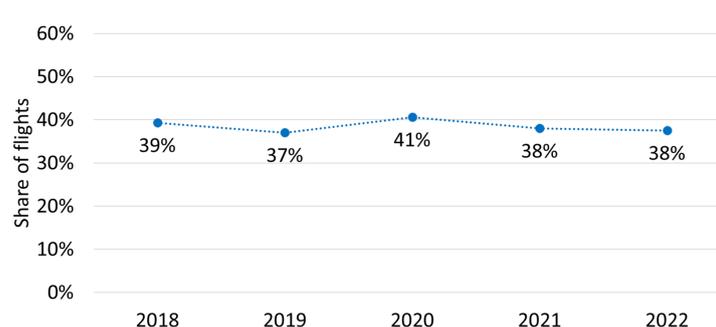
Greece did not achieve its 2022 KEA target by 0.41 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



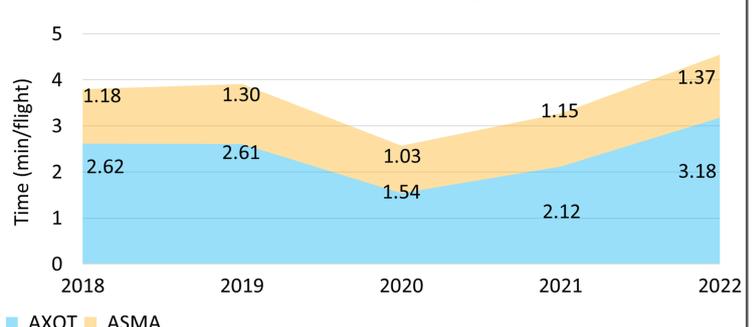
Greece made shorter constrained routes available to airspace users in 2022, who were then able to plan shorter routes.

Share of CDO per year



Greece's CDO performance worsened in 2022 compared to 2021. However, it was a similar performance as achieved in the past.

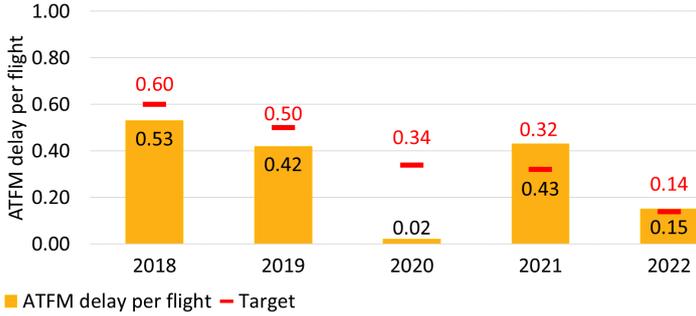
Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 4.55 minutes per flight either taxiing or holding at Athens airport.

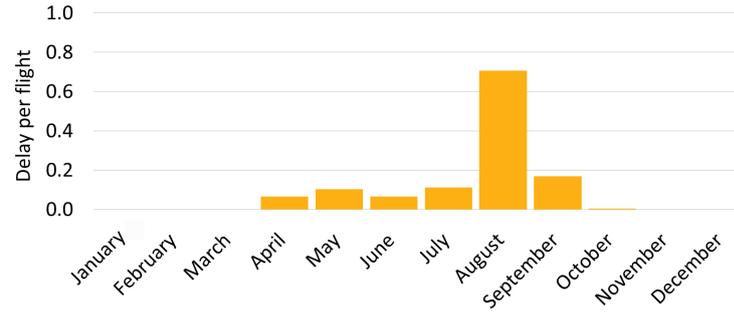
Capacity

ATFM delay per flight (min/flight)



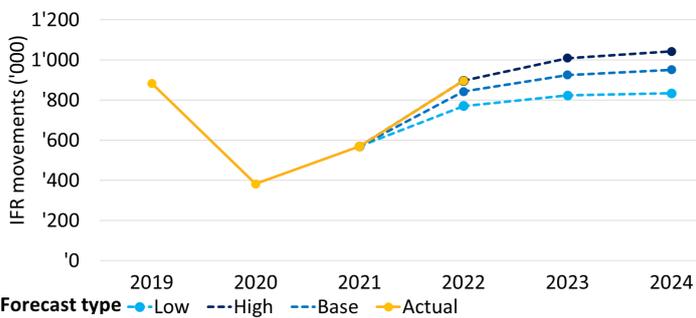
Delays in Greece decreased by 0.28 minutes/flight. Performance in Greece was marginally worse than the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



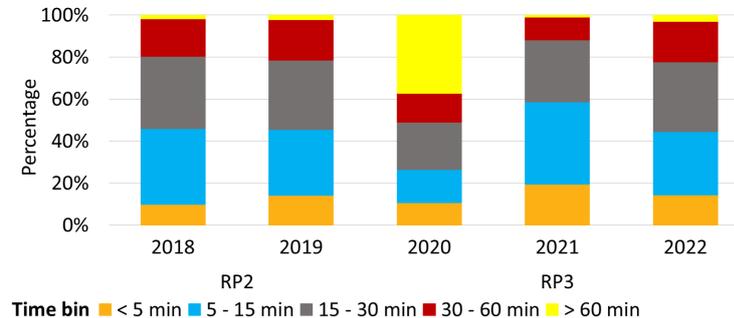
Most ATFM delays were accumulated during August, due to adverse weather, ATC capacity, and staffing.

IFR movements and forecasts by year



IFR movements in Greece were at the level of the high scenario of the 2022 June forecast in 2022.

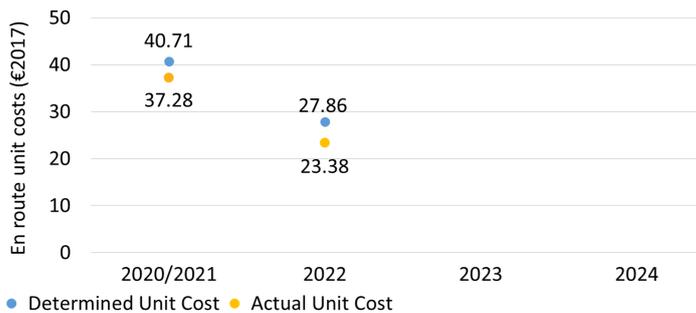
Percentage of en route delays per flight by year and time bin



The share of delayed flights with delays longer than 15 minutes increased by 14 percentage points compared to 2021.

Cost-efficiency

En route actual unit cost and determined unit cost by year



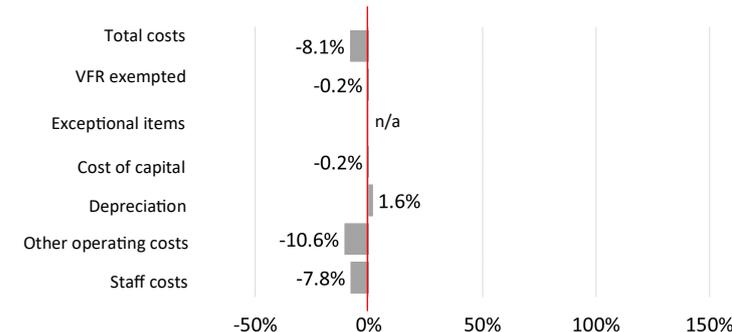
The 2022 en route actual unit cost was lower than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



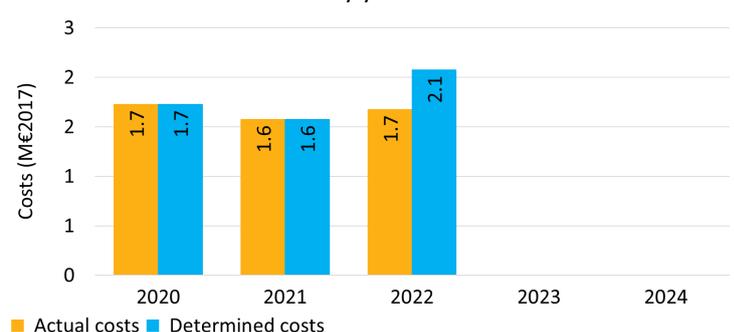
The 2022 terminal actual unit cost was lower than the determined unit cost.

% difference between 2022 actual costs and determined



In 2022, Greece decreased cost by 8.1% compared to determined, primarily due to lower staff and other operating cost.

Costs related to investments by year



HASP 2022 costs related to investments were 19% lower than planned due to a slight delay in an investment project.

Comments from the Performance Review Body:

Safety:

- HungaroControl had already achieved the RP3 EoS targets in 2020 and has continued to further improve its performance. In 2022 HungaroControl achieved level D in all five management objectives, exceeding all its planned maturity levels.
- Hungary recorded a stable number of safety occurrences with an increase in the rate of runway incursions in 2022, but a lower rate of separation minima infringements relative to 2021. Both rates are below the Union-wide average.
- HungaroControl could improve its safety management by implementing automated safety data recording systems for runway incursions.

Environment:

- Hungary achieved a KEA performance of 2.17% compared to its target of 1.49% and did not contribute positively towards achieving the Union-wide target. KEA increased in comparison to 2021.
- The NSA states that the performance deteriorated due to the extra distance flown as a result of Russia's war of aggression against Ukraine.
- Both KEP and SCR deteriorated in comparison with 2021. The value of these two indicators was similar, meaning airspace users planned close to the shortest route available.
- The share of CDO flights decreased by 24.12% compared to 2021.
- During 2022, additional time in terminal airspace decreased from 0.67 to 0.34 min/flight, while additional taxi out time increased from 1.06 to 1.40 min/flight.

Capacity:

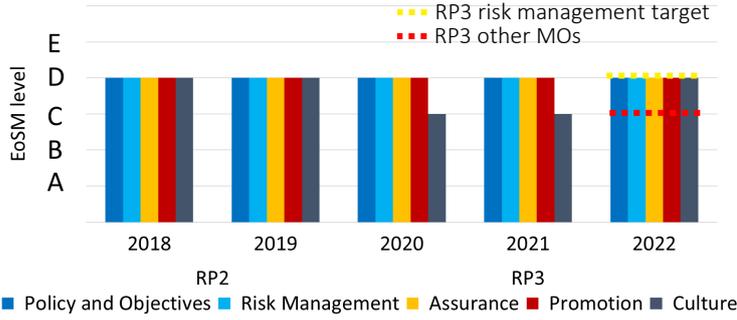
- Hungary registered 0.89 minutes of average en route ATFM delay per flight during 2022 which has been adjusted to 0.54 during the post-ops adjustment process, thus not achieving the local target value of 0.11.
- The average number of IFR movements was 1% above 2019 levels in Hungary in 2022.
- The number of ATCOs in OPS is expected to increase by 12% by the end of RP3, with the actual value being below the 2022 plan in Budapest ACC .
- The impact of Russia's war of aggression against Ukraine had a detrimental effect on capacity performance in Hungary in 2022.

Cost-efficiency:

- The en route 2022 actual unit cost of Hungary was 30.25€₂₀₁₇, 34% lower than the determined unit cost (45.72€₂₀₁₇). The terminal 2022 actual unit cost was 306.58€₂₀₁₇, 19% lower than the determined unit cost (378.72€₂₀₁₇).
- The en route 2022 actual service units (3,184K) were 32% higher than the determined service units (2,419K).
- In 2022, the en route actual total costs were 14M€₂₀₁₇ lower (-13%) compared to determined. Hungary had significant decreases in all cost categories except for cost of capital (+2.5M€₂₀₁₇, or +36%). The NSA explained that the net current assets increased due to the inclusion of pension related obligations towards ATCOs.
- The key driver of the decrease was the reduction in staff cost (-7.1M€₂₀₁₇, or -14%), mainly due to lower headcounts than planned and postponed salary increases, and other operating costs (-8.2M€₂₀₁₇, or -22%), mainly due to lower procurements costs due to COVID-19.
- Hungary presented a deviation from the criteria to achieve capacity targets, which was considered justified. Considering that costs are significantly lower and that the 2022 en route capacity targets have not been achieved, the situation raises serious concern. The PRB invites the NSA to analyse the discrepancies and identify their reasons and the Member State to rectify the situation to ensure that the additional means granted through the capacity deviation are actually used to address the capacity issues.
- HungaroControl spent 29M€₂₀₁₇ in 2022 related to costs of investments, 7.5% less than determined (31M€₂₀₁₇), mainly due to some investments being scheduled later than planned.
- The en route actual unit cost incurred by users in 2022 was 33.58€, while the terminal actual unit cost incurred by users was 331.37€.

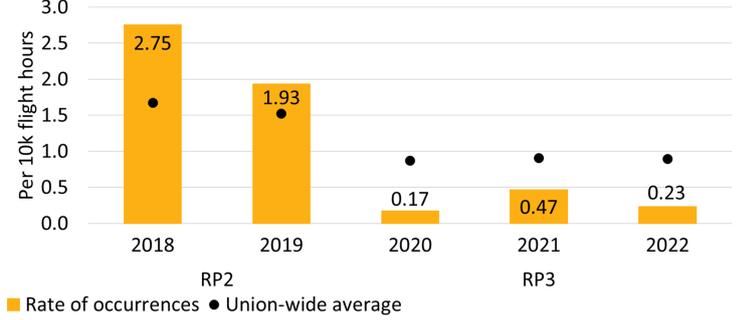
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



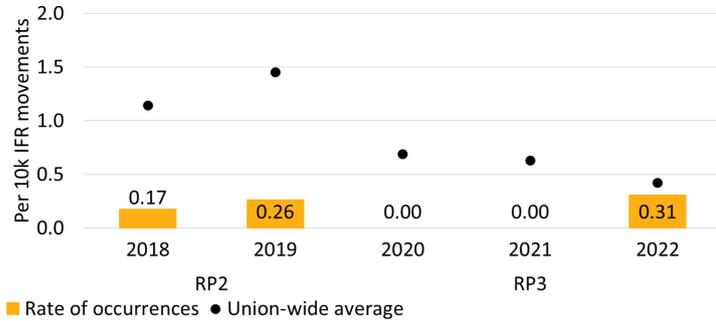
HungaroControl exceeded the RP3 targets achieving level D in five MOs already in 2022.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour decreased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement increased in 2022 relative to 2021. The rate was below the Union-wide average.

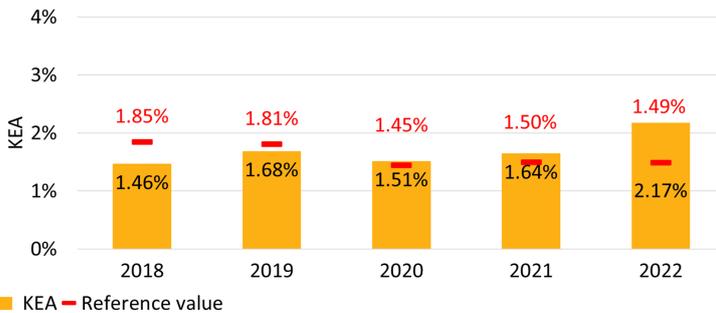
Use of automated safety data recording systems



Hungary uses automated safety data recording systems for SMIs.

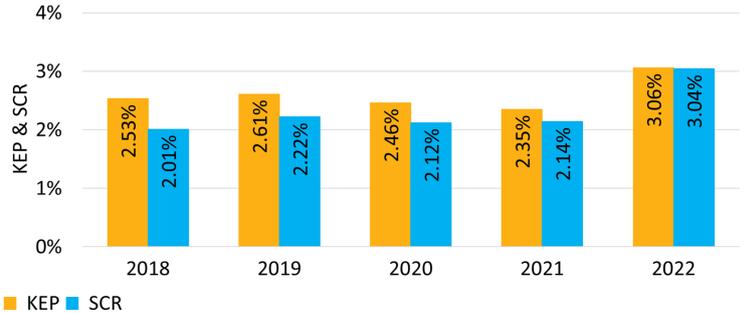
Environment

KEA performance



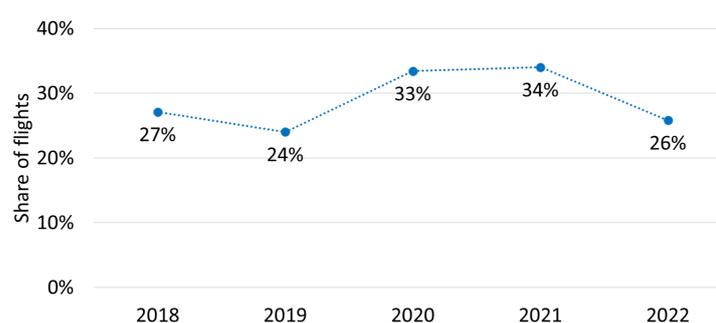
Hungary did not achieve its 2022 KEA target by 0.68 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



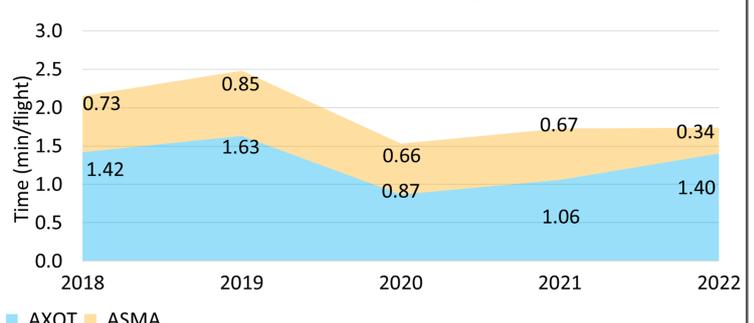
Hungary made shorter constrained routes available to airspace users in 2022, who were then able to plan shorter routes.

Share of CDO per year



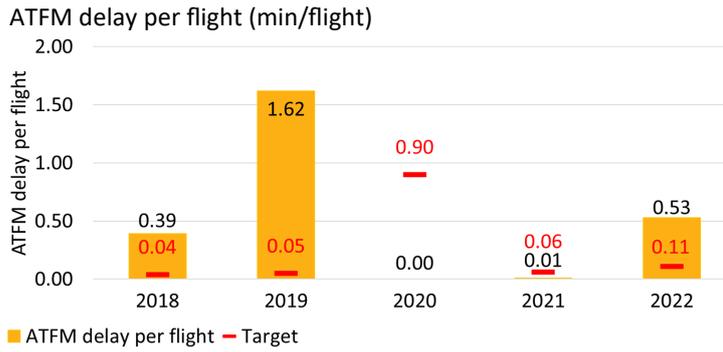
Hungary's CDO performance worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

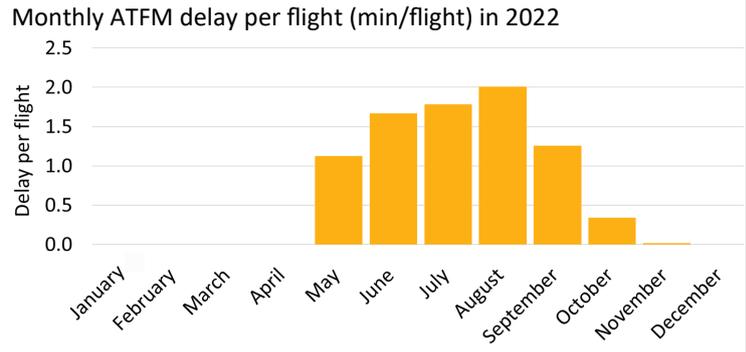


Terminal airspace users spent an additional 1.74 minutes per flight either taxiing or holding at Budapest airport.

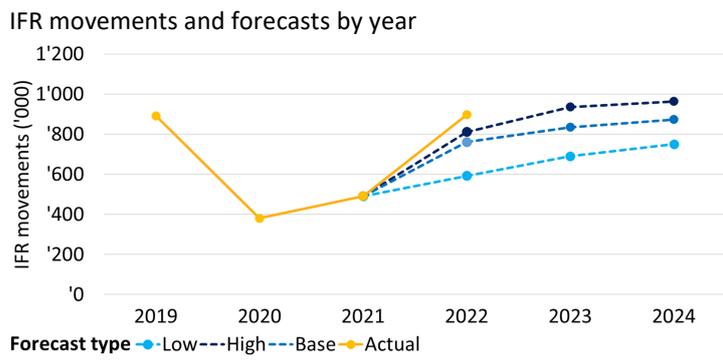
Capacity



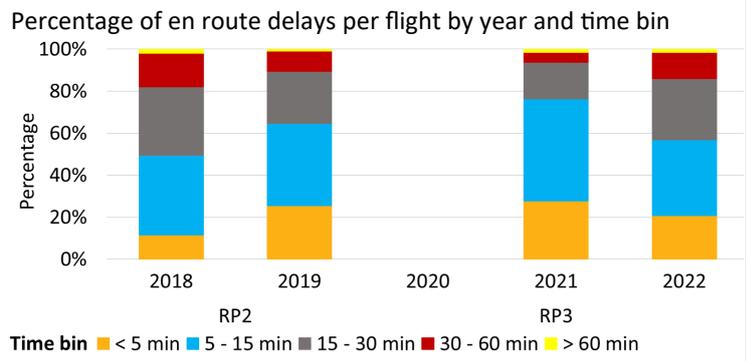
Delays in Hungary increased by 0.53 minutes/flight year-on-year. Performance in Hungary was worse than the local target in 2022.



Delays were highest between May and September, mostly driven by ATC capacity and adverse weather.

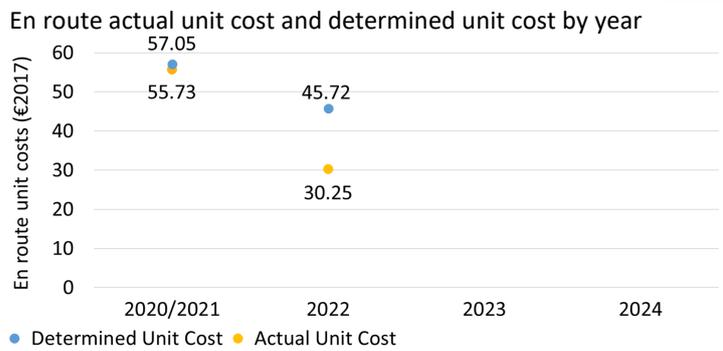


IFR movements in Hungary were 11% above the high scenario of the 2021 October forecast in 2022.

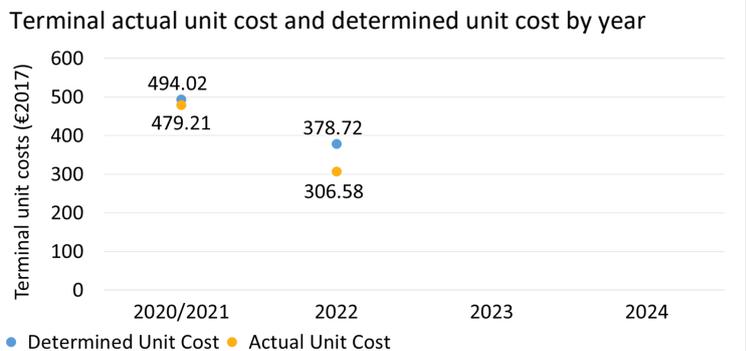


The share of delayed flights with delays longer than 15 minutes increased by 19 percentage points compared to 2021.

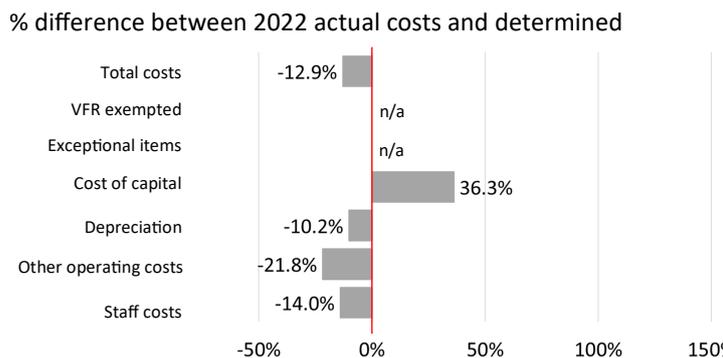
Cost-efficiency



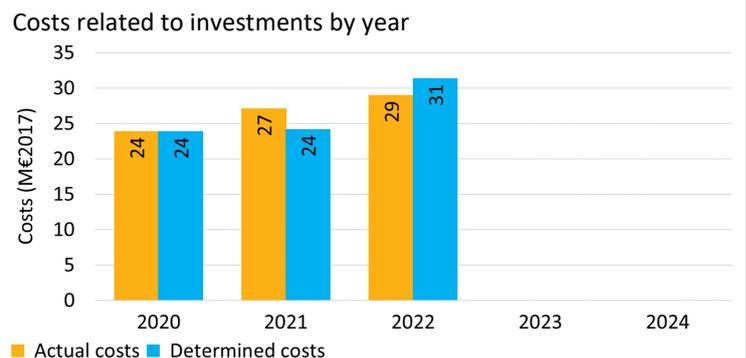
The 2022 en route actual unit cost was lower than the determined unit cost.



The 2022 terminal actual unit cost was lower than the determined unit cost.



Hungary decreased costs in all cost categories, except the cost of capital compared to determined value.



HungaroControl 2022 costs related to investments were 7.5% lower than planned.

Comments from the Performance Review Body:

Safety:

- IAA ANSP achieved the RP3 EoS targets in four out of five management objectives in 2022, but still needs improvements in safety risk management. The measures identified mainly related to the implementation of Regulation (EU) 2017/373. Minimum maturity level on safety culture decreased between 2021 and 2022 but still achieved the RP3 target.
- Despite doubling the traffic, Ireland recorded a lower rate of separation minima infringements and runway incursions relative to 2021. Both rates are below the Union-wide average.
- The NSA has established associated safety targets and alert thresholds to provide quantifiable measures related to the achieved level of safety as defined by an Acceptable Level of Safety Performance (ALSP) of Ireland.
- IAA ANSP could improve its safety management by implementing automated safety data recording systems.

Environment:

- Ireland achieved a KEA performance of 1.12% compared to its target of 1.13% and contributed positively towards achieving the Union-wide target. KEA deteriorated in comparison to 2021 but still the target was met.
- Both KEP and SCR deteriorated in comparison with 2021. The NSA states that they are currently reviewing the airspace and RADs with neighbouring countries.
- The share of CDO flights decreased by 20.77% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.57 to 2.02 min/flight, while additional taxi out time increased from 1.32 to 5.27 min/flight.

Capacity:

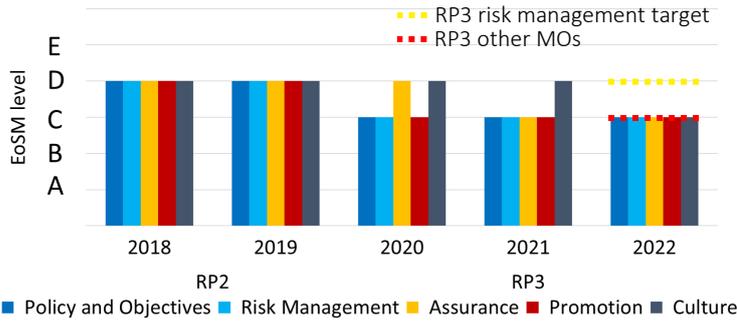
- Ireland registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.03.
- The average number of IFR movements was 10% below 2019 levels in Ireland in 2022.
- The number of ATCOs in OPS is not expected to change in Dublin and Shannon ACC by the end of RP3. In Dublin ACC, however, the actual number remained below the 2022 plan, due to higher-than-expected attrition.

Cost-efficiency:

- The en route 2022 actual unit cost of Ireland was 25.58€₂₀₁₇, 14% lower than the determined unit cost (29.84€₂₀₁₇). The terminal 2022 actual unit cost was 169.32€₂₀₁₇, 3.4% higher than the determined unit cost (163.79€₂₀₁₇).
- The en route 2022 actual service units (4,233K) were 6.1% higher than the determined service units (3,991K).
- The en route 2022 actual total costs were 11M€₂₀₁₇ (-9.1%) lower than determined, as all cost categories decreased. The total cost reduction was mainly driven by lower other operating costs (-5.5M€₂₀₁₇, or -13%), caused by the postponement of planned OPEX to prioritise service delivery as traffic increased significantly during the year.
- IAA ANSP spent 16M€₂₀₁₇ in 2022 related to costs of investments, 18% lower than determined (20M€₂₀₁₇), as investments have been delayed due to shortages in resource availability and challenges with sourcing contractors and service providers.
- As for the previous monitoring year, the discrepancies regarding costs of investments are significant. The PRB invites the NSA to analyse the discrepancies, identify their reasons, and request the Member State to take immediate, adequate, and proportionate action to ensure the implementation of the investment plans to avoid future capacity gaps.
- The en route actual unit cost incurred by users in 2022 was 30.93€, while the terminal actual unit cost incurred by users was 164.74€.

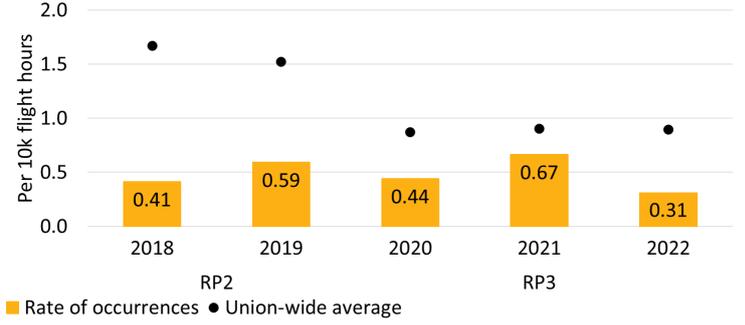
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



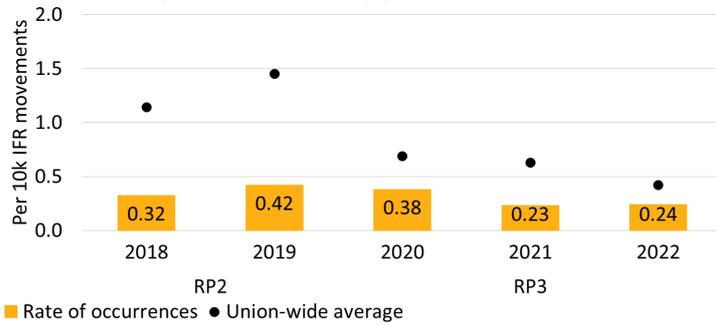
IAA ANSP did not achieve the RP3 target for safety risk management but achieved the targets for all other MOs already in 2020.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour decreased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement is at comparable level in 2022 relative to 2021. The rate was below the Union-wide average.

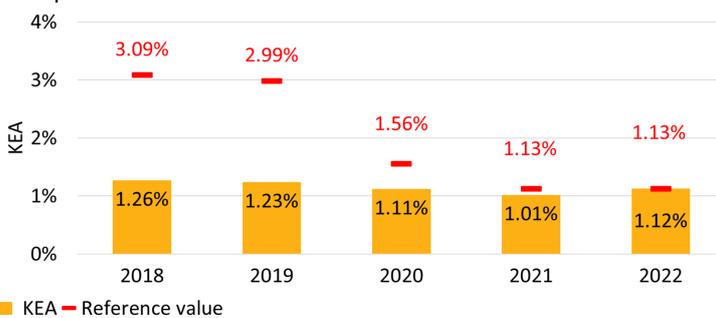
Use of automated safety data recording systems



Ireland does not use automated safety data recording systems for RIs or for SMIs.

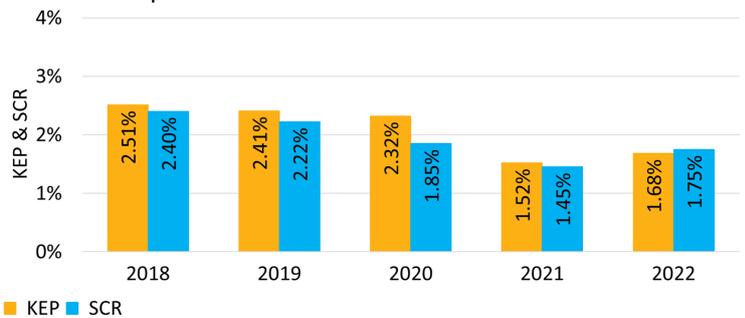
Environment

KEA performance



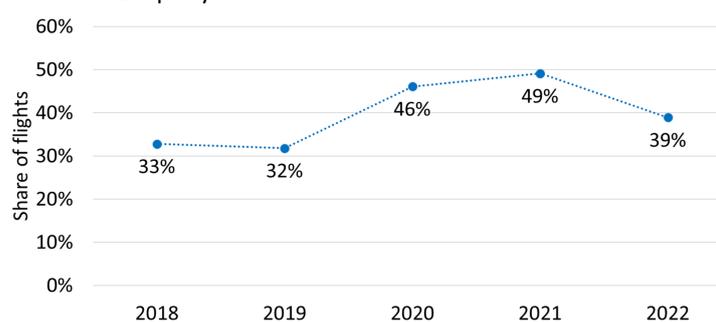
Ireland achieved its 2022 KEA target by 0.01 percentage points, but performance worsened relative to 2021.

KEP and SCR performance



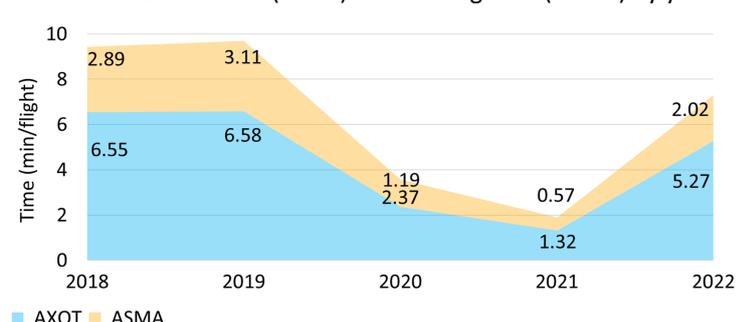
Ireland was not able make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

Share of CDO per year



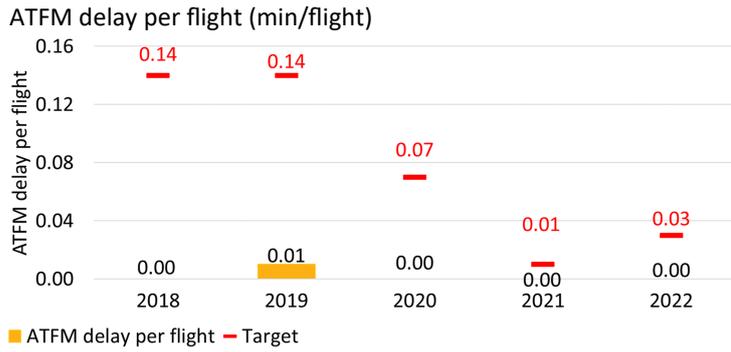
Ireland's CDO performance worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

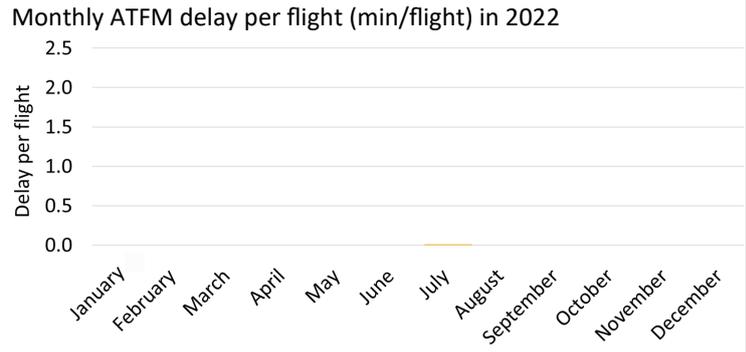


Terminal airspace users spent an additional 6.54 minutes per flight either taxiing or holding at Dublin airport.

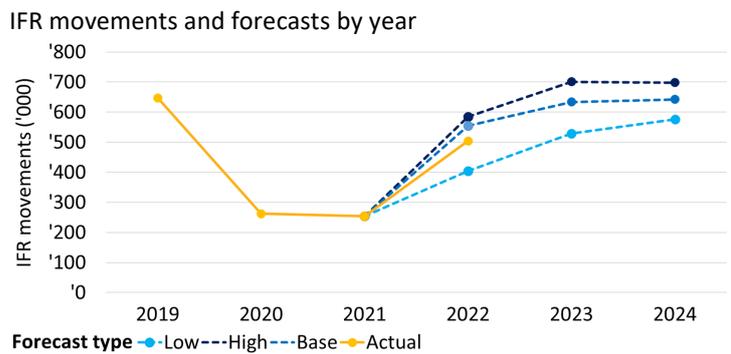
Capacity



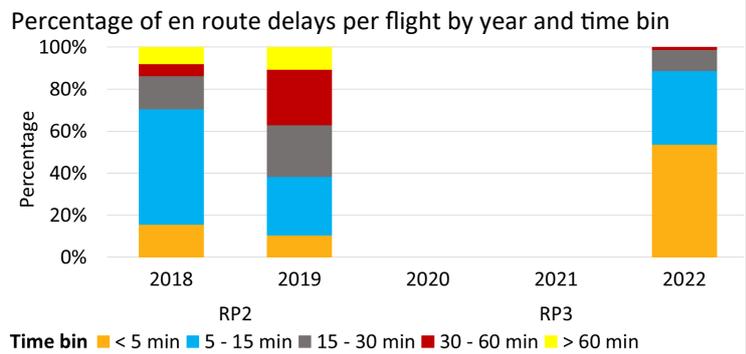
Delays in Ireland remained at zero minutes per flight. Performance in Ireland exceeded the local target in 2022.



There were only negligible delays during July in Ireland in 2022.

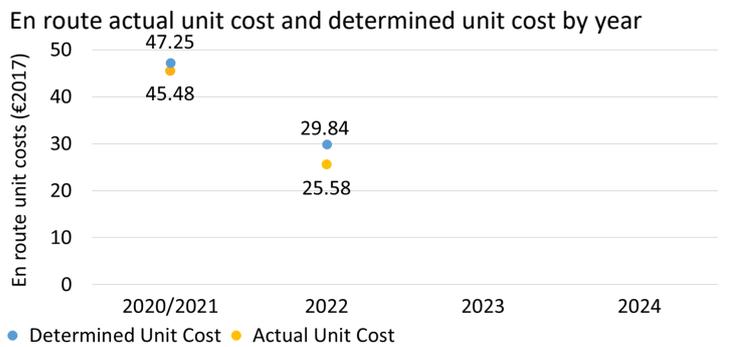


IFR movements in Ireland were 9% below the base scenario of the 2021 October forecast in 2022.

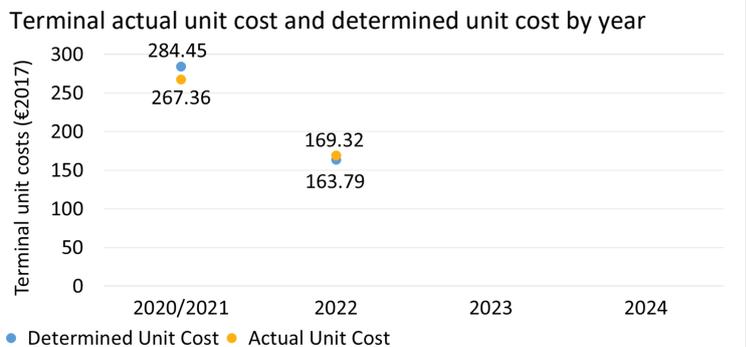


Low levels of delays should be considered when reviewing the graph.

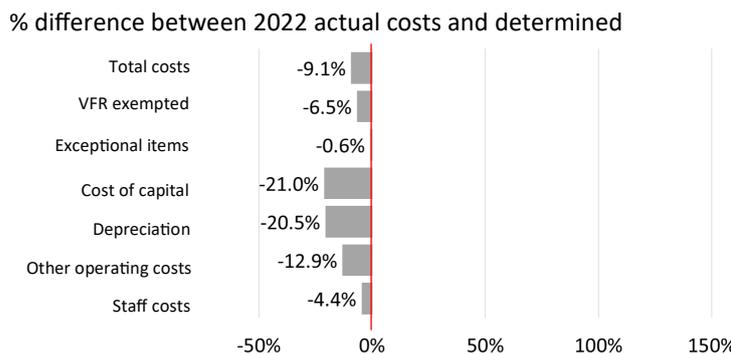
Cost-efficiency



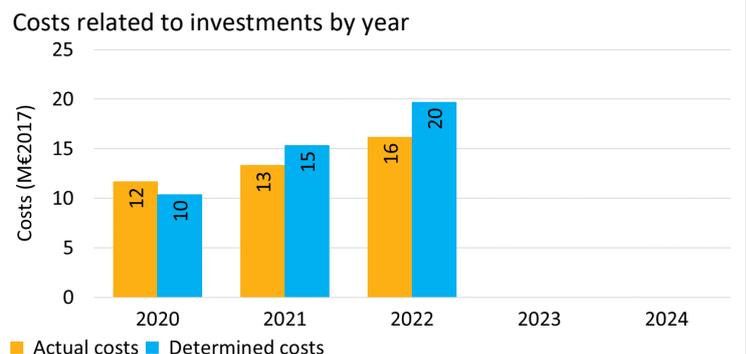
The 2022 en route actual unit cost was lower than the determined unit cost.



The 2022 terminal actual unit cost was higher than the determined unit cost.



Ireland decreased all cost categories in 2022 compared to determined.



IAA ANSP 2022 costs related to investments were 18% lower than planned due to delays in investment projects.

Comments from the Performance Review Body:

Safety:

- ENAV maintained its safety performance, remaining at the RP3 EoS target levels in all management objectives. The achieved maturity exceeds the planned maturity levels.
- Italy recorded an increase of the rate of separation minima infringements in 2022 relative to 2021. The rate was above the Union-wide average. The runway incursions rate was lower than in 2021.
- ENAV could improve its safety management by implementing automated safety data recording systems.

Environment:

- Italy achieved a KEA performance of 2.98% compared to its target of 2.67% and did not contribute positively towards achieving the Union-wide target. KEA was at its highest value in RP3 so far.
- The NSA has not provided any adequate explanation as to why KEA deteriorated year on year.
- Both KEP and SCR deteriorated in comparison with 2021.
- The share of CDO flights decreased by 10.34% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.95 to 1.32 min/flight, while additional taxi out time increased from 2.36 to 3.41 min/flight.

Capacity:

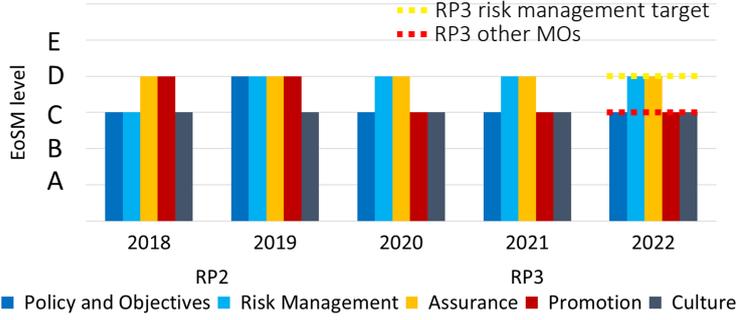
- Italy registered 0.22 minutes of average en route ATFM delay per flight during 2022 which has been adjusted to 0.15 minutes during the post-ops adjustment process, thus not achieving the local target value of 0.11.
- The average number of IFR movements was 9% below 2019 levels in Italy in 2022.
- The number of ATCOs in OPS is expected to increase in all ACCs, except for Rome by the end of RP3. In Brindisi, Padova, and Rome ACCs, the actual values remained below the 2022 plan, while in Milano ACC the actual value was in line with the 2022 plan.

Cost-efficiency:

- The en route 2022 actual unit cost of Italy was 62.12€₂₀₁₇, 16% lower than the determined unit cost (73.67€₂₀₁₇). The terminal zone 1 2022 actual unit cost was 192.48€₂₀₁₇, 7.4% higher than the determined unit cost (179.29€₂₀₁₇), while the terminal zone 2 2022 actual unit cost was 181.00€₂₀₁₇, 17% lower than the determined unit cost (219.23€₂₀₁₇).
- The en route 2022 actual service units (9,562K) were 12% higher than the determined service units (8,507K).
- The en route 2022 actual total costs were 33M€₂₀₁₇ (-5.2%) lower than determined. With the exception of cost of capital, Italy decreased the costs in all cost categories.
- The decrease in staff cost (-20M€₂₀₁₇, or -5.7%) was a result of higher inflation than expected. The NSA explains that the decrease in other operating costs (-13M€₂₀₁₇, or -8.6%) was mainly due to lower external and maintenance costs. The cost of capital on the other hand increased significantly by 22% (+8.3M€₂₀₁₇) due to higher interest on debt than planned.
- ENAV spent 135M€₂₀₁₇ in 2022 related to costs of investments, 2.1% less than determined (137M€₂₀₁₇). The reduction was driven by a decrease in depreciation costs.
- The en route actual unit cost incurred by users in 2022 was 74.13€, while the terminal zone 1 actual unit cost incurred by users was 211.31€ and 218.92€ for terminal zone 2.

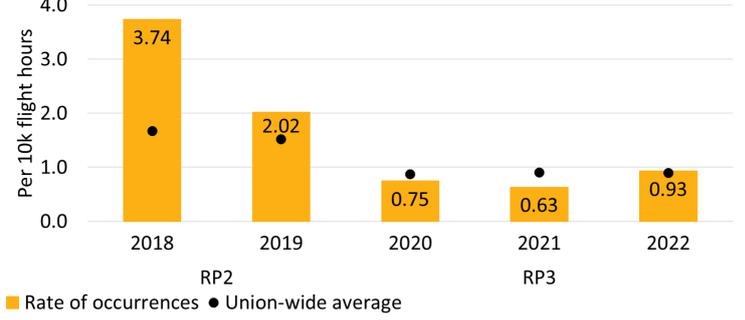
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



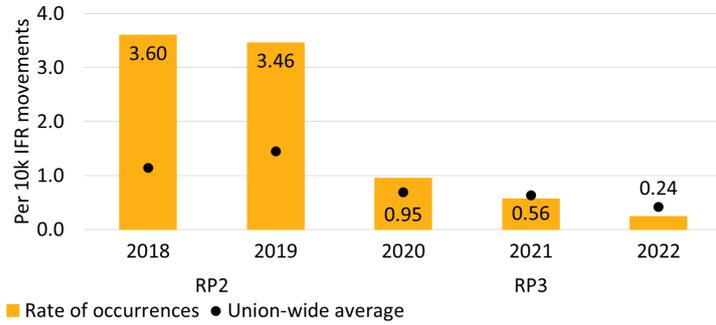
ENAV achieved the RP3 EoS_M target levels in 2020 and has further improved since.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour in 2022 increased relative to 2021. The rate was above the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was below the Union-wide average.

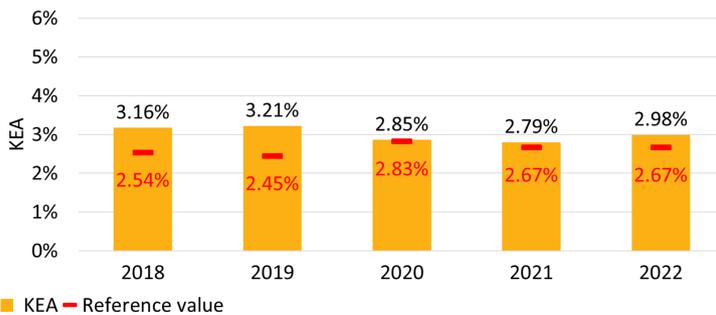
Use of automated safety data recording systems



Italy does not use automated safety data recording systems for RIs or for SMIs.

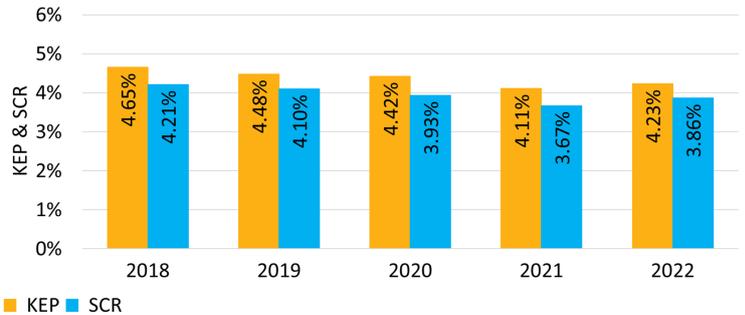
Environment

KEA performance



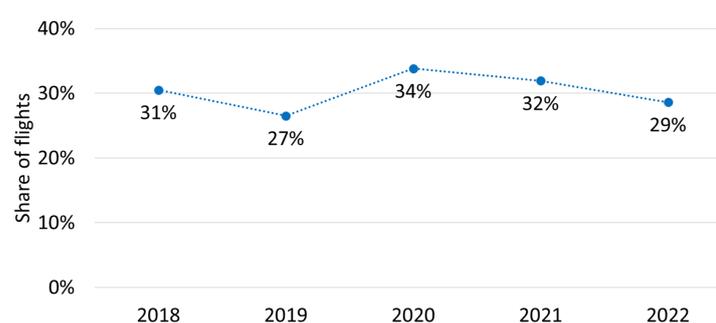
Italy did not achieve its 2022 KEA target by 0.31 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



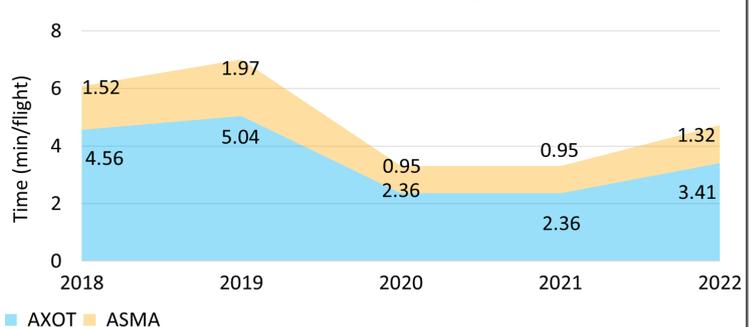
Italy was not able to make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

Share of CDO per year



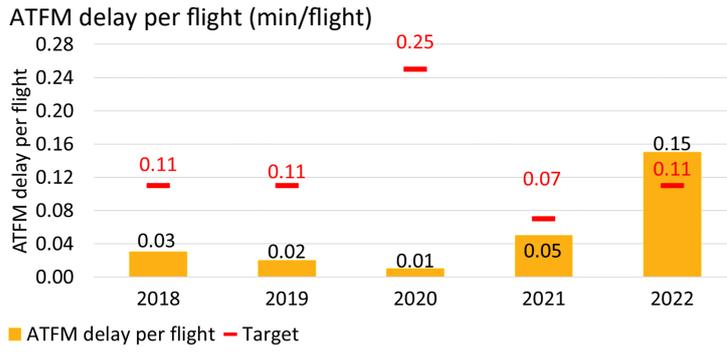
Italy's CDO performance worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

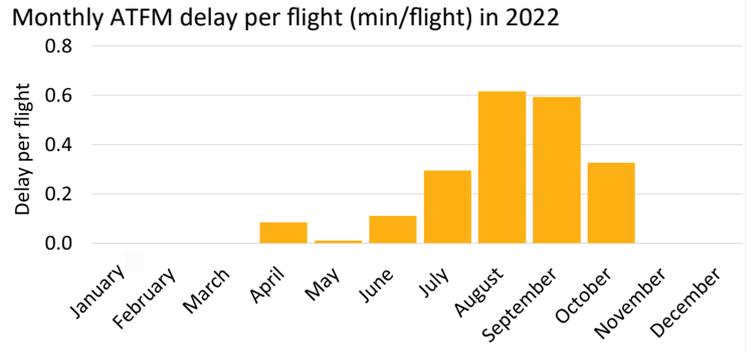


Terminal airspace users spent an additional 4.73 minutes per flight either taxiing or holding at Italian airports.

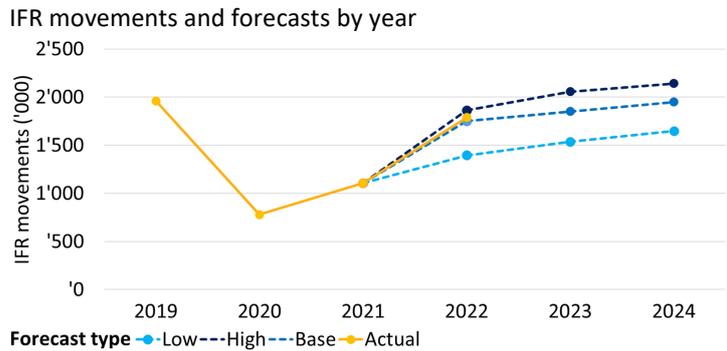
Capacity



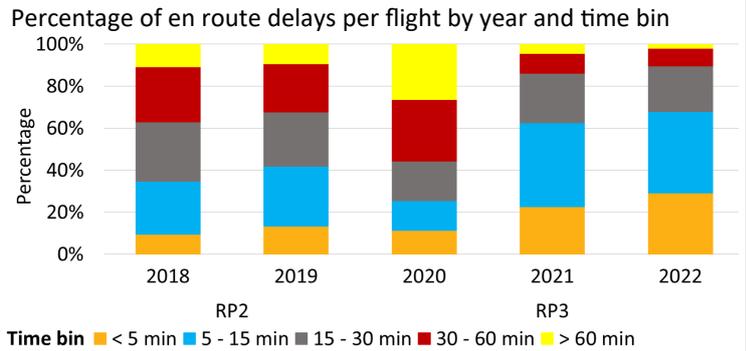
Delays in Italy increased by 0.10 minutes per flight. Performance in Italy was worse than the local target in 2022.



Delays were highest between July and September, with adverse weather and ATC capacity reasons being the key drivers.

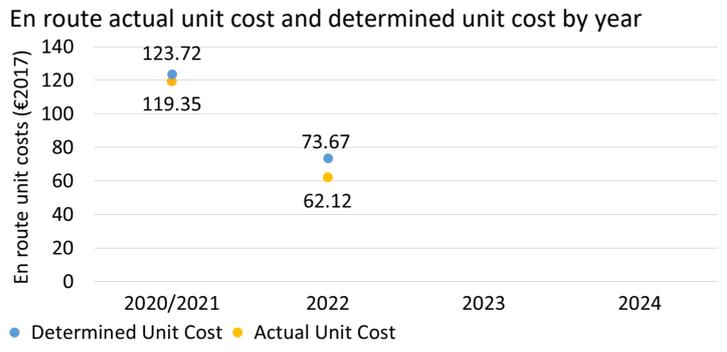


IFR movements in Italy were 2% above the base scenario of the 2021 October forecast in 2022.

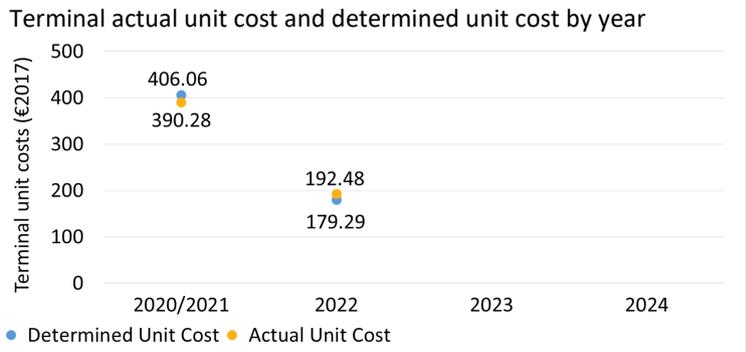


The share of delayed flights with delays longer than 15 minutes decreased by 5 percentage points compared to 2021.

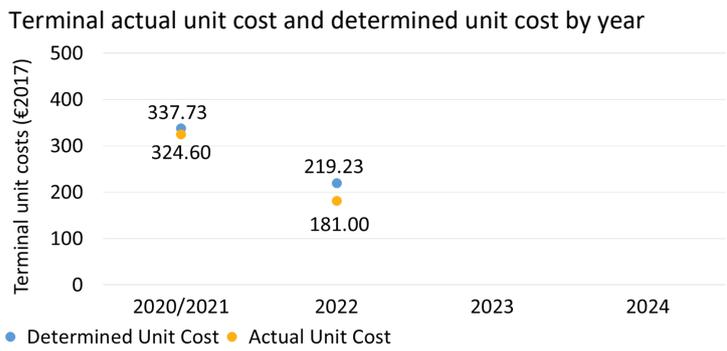
Cost-efficiency



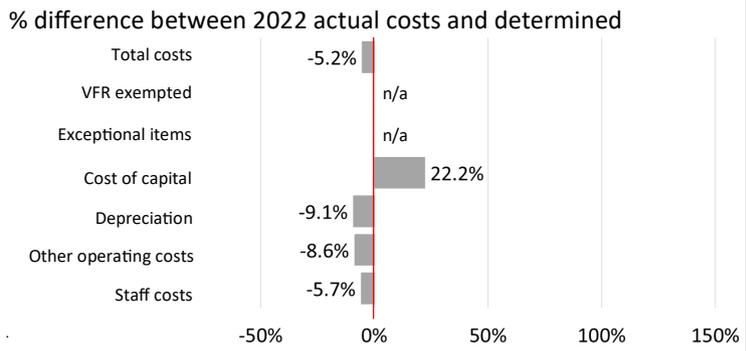
The 2022 en route actual unit cost was lower than the determined unit cost.



The 2022 terminal zone 1 actual unit cost was higher than the determined unit cost.



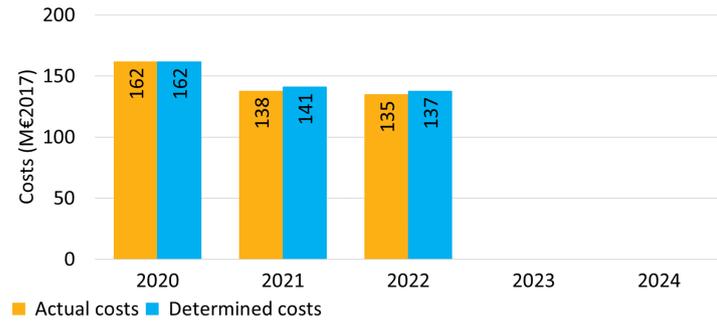
The 2022 terminal zone 2 actual unit cost was lower than the determined unit cost.



Despite the substantial increase in cost of capital, the total actual cost decreased compared to the determined.

Cost-efficiency

Costs related to investments by year



ENAV 2022 costs related to investments were 2.1% lower than planned.

Comments from the Performance Review Body:

Safety:

- Due to a single deficiency in the emergency and contingency response exercise, LGS failed to maintain the previously achieved RP3 target for safety objectives and policy. The additional measures to return on target for this specific management objective were identified and the NSA was confident that the ANSP will achieve level D in the coming year.
- LGS commenced a systematic assessment of the safety function to identify the necessary changes to improve its performance in relation to the safety risk management objective.
- Latvia recorded stable performance with respect to safety risks with no runway incursions and a single separation minima infringement in 2022.
- LGS uses specific safety recording tools for separation minima infringements and runway incursions, and is one of the few ANSPs that does so.

Environment:

- Latvia achieved a KEA performance of 6.26% compared to its target of 1.25% and did not contribute positively to the Union-wide target. KEA performance further worsened by 4.64 percentage points in comparison to 2021.
- The KEA deterioration was due to significant route extensions as a result of Russia's war of aggression against Ukraine.
- Both KEP and SCR followed the same trend and worsened in comparison with 2021's performance.
- The share of CDO flights increased by 15.05% compared to 2021.
- During 2022, additional time in terminal airspace decreased from 0.52 to 0.33 min/flight, while additional taxi out time increased from 2.74 to 2.82 min/flight.

Capacity:

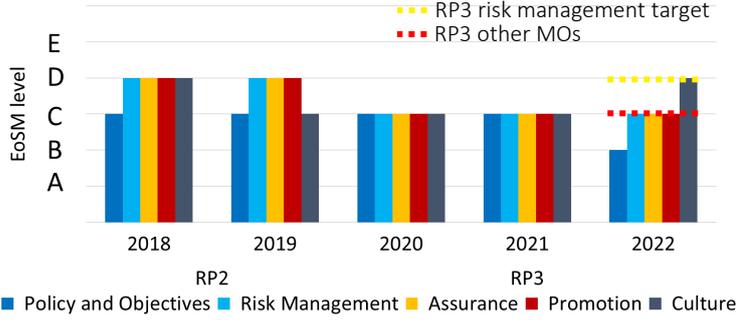
- Latvia registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.03.
- The average number of IFR movements was 37% below 2019 levels in Latvia in 2022.
- The number of ATCOs in OPS is not expected to change significantly by the end of RP3, with the actual plan remaining below the 2022 plan in Riga ACC.

Cost-efficiency:

- The en route 2022 actual unit cost of Latvia was 35.77€₂₀₁₇, 6.0% lower than the determined unit cost (38.04€₂₀₁₇). The terminal 2022 actual unit cost was 171.28€₂₀₁₇, 17% higher than the determined unit cost (145.91€₂₀₁₇).
- The en route 2022 actual service units (466K) were equal to the determined service units.
- The en route 2022 actual total costs were 1.1M€₂₀₁₇ (-6.0%) lower than determined. The reduction in total cost was due to the lower staff (-0.8M€₂₀₁₇, or -8.1%) and other operating costs (-0.5M€₂₀₁₇ or, -12%) mainly as a result of higher inflation than anticipated and cost containment measures due to Russia's war of aggression against Ukraine.
- LGS spent 6.2M€₂₀₁₇ in 2022 related to costs of investments, 6.6% more than determined (5.8M€₂₀₁₇). The NSA explained that the increase was mainly due to commissioning of several investments.
- The en route actual unit cost incurred by users in 2022 was 44.43€, while the terminal actual unit cost incurred by users was 174.54€.

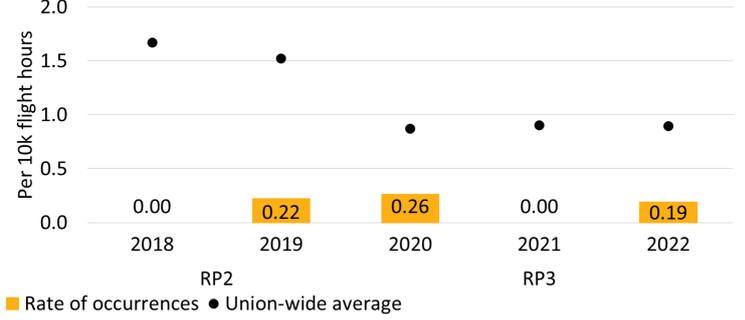
Safety

Main ANSP's effectiveness of safety management (EoSM) by year



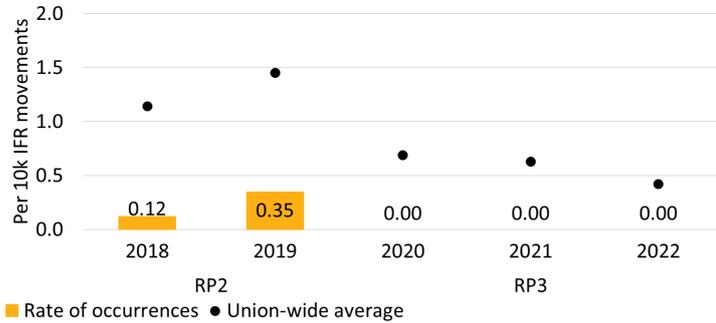
LGS achieved the RP3 target on three MOs but needs to improve policy and objectives and safety risk management.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour in 2022 increased relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



Latvia did not record any RIs in 2022.

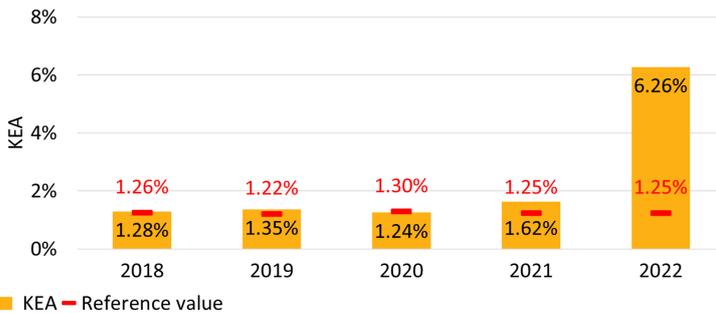
Use of automated safety data recording systems



Latvia uses the automated safety data recording systems for RIs and SMIs.

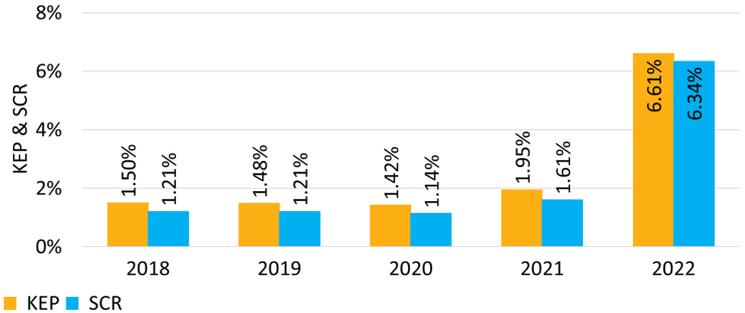
Environment

KEA performance



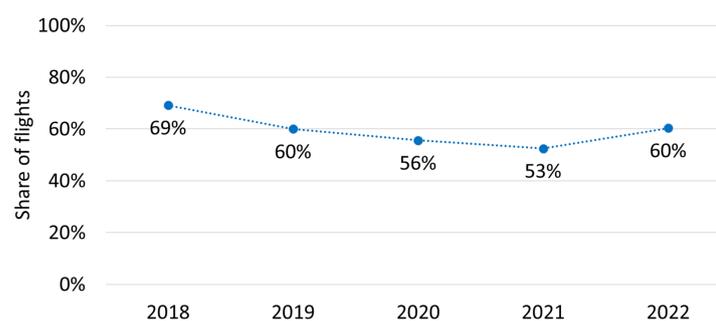
Latvia did not achieve its 2022 KEA target by 5.01 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



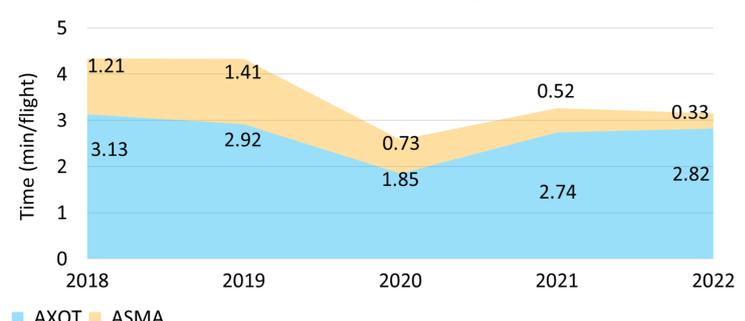
Latvia did not make shorter routes available due to current geopolitical situation, leading airspace users planning longer routes.

Share of CDO per year



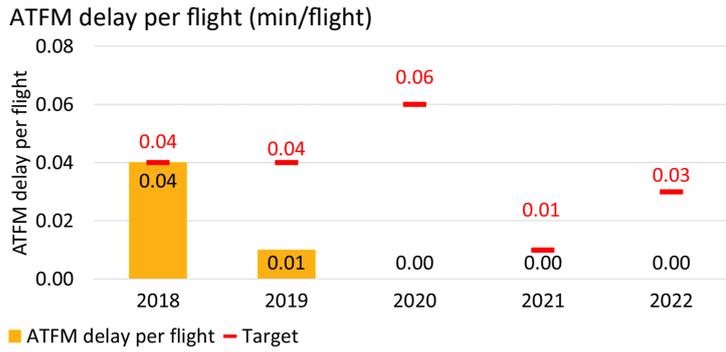
Latvia's CDO performance improved in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

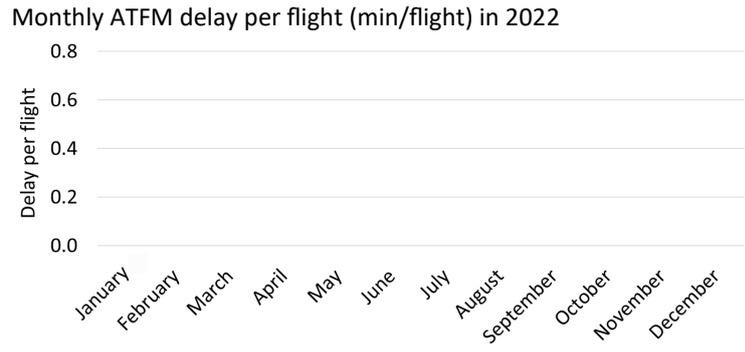


Terminal airspace users spent an additional 3.15 minutes per flight either taxiing or holding at Latvian airports.

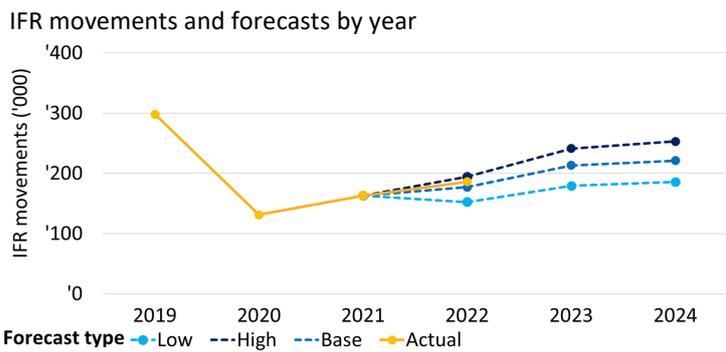
Capacity



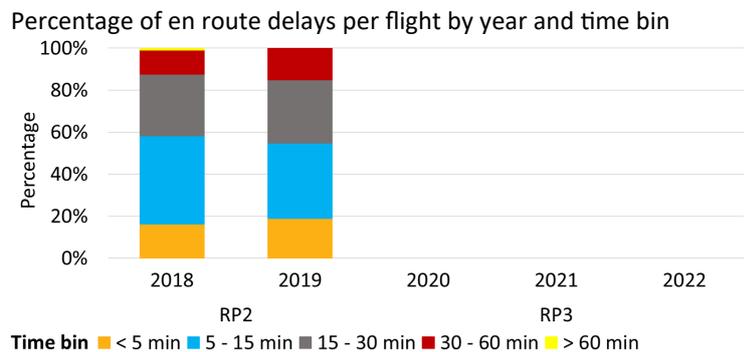
Delays in Latvia remained at zero minutes per flight. Performance in Latvia exceeded the local target in 2022.



There were no ATFM delays in Latvia in 2022.

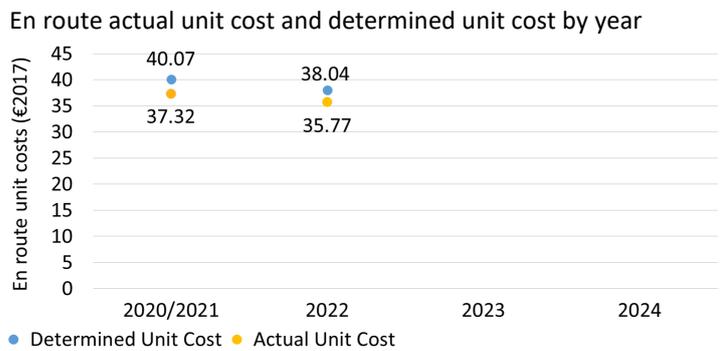


IFR movements in Latvia were 5% above the base scenario of the 2022 June forecast in 2022.

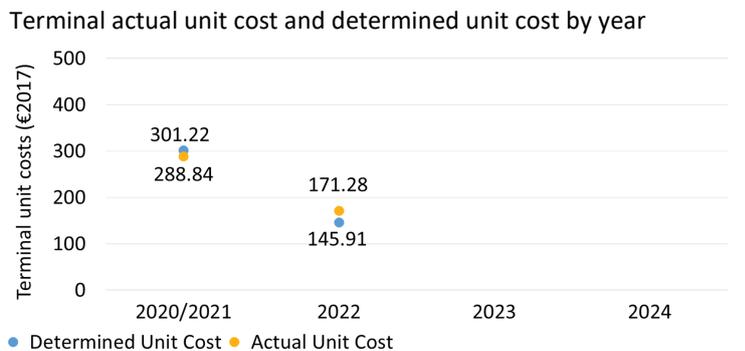


There were no en route delays in Latvia in 2022.

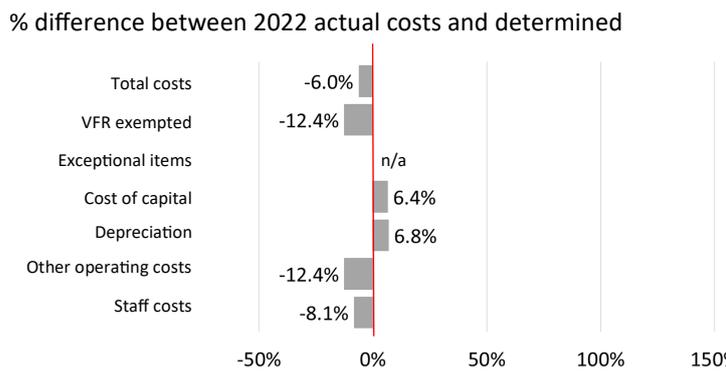
Cost-efficiency



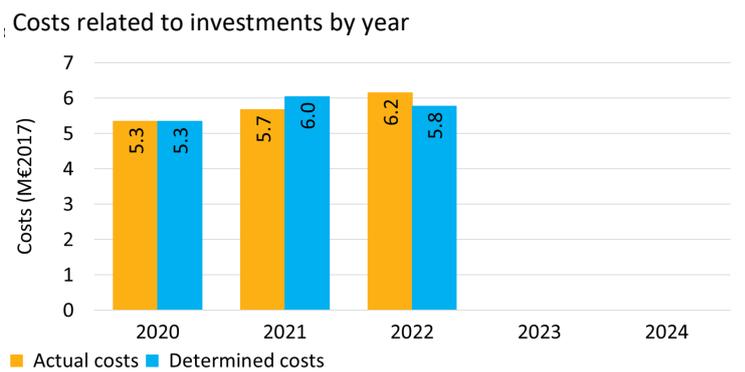
The 2022 en route actual unit cost was lower than the determined unit cost.



The 2022 terminal actual unit cost was higher than the determined unit cost.



Latvia decreased total cost by 6.0% in 2022 compared to determined, due to a decrease in staff and other operating costs.



LGS spent in 2022 6.6% more than determined in costs related to investments due to commissioning of several investments.

Comments from the Performance Review Body:

Safety:

- SE Oro Navigacija has already achieved the RP3 targets in 2020 but continued to improve its performance and achieved maximum level on all objectives in 2022. A review of the safety function by the NSA confirmed the achieved maturity level of the safety management system.
- Lithuania recorded a stable performance with respect to safety risks with marginal increase of separation minima infringements and runway incursions reported in 2022. The safety occurrences were closely monitored against the acceptable and tolerated levels of safety (ATLS) established in the Lithuanian National Safety Plan 2021-2025.
- SE Oro Navigacija could improve its safety management by implementing automated safety data recording systems.

Environment:

- Lithuania achieved a KEA performance of 12.21% compared to its target of 1.92% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 9.20 percentage points in comparison to 2021.
- The KEA deterioration was due to significant route extensions as a result of Russia's war of aggression against Ukraine.
- SCR and KEP worsened significantly compared to 2021.
- The NSA also highlights that Lithuania's geographical location (neighbouring Kaliningrad and Belarus) is a barrier to environmental performance.
- Lithuania has no airports that are regulated under the RP3 performance and charging scheme.

Capacity:

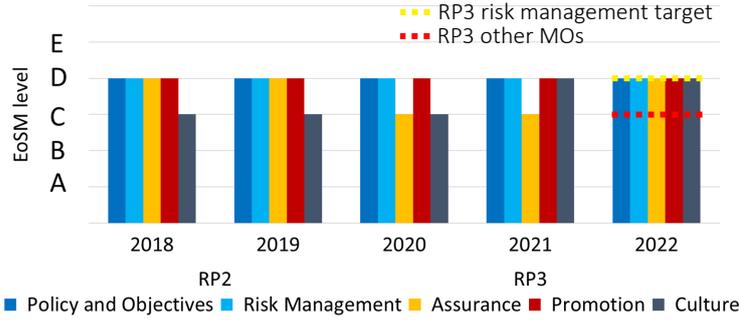
- Lithuania registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.02.
- The average number of IFR movements was 39% below 2019 levels in Lithuania in 2022.
- The number of ATCOs in OPS is expected to remain at the same level by the end of RP3, with the actual number being above the 2022 plan in Vilnius ACC.

Cost-efficiency:

- The en route 2022 actual unit cost of Lithuania was 47.50€₂₀₁₇, 2.8% lower than the determined unit cost (48.87€₂₀₁₇). Lithuania does not have a terminal charging zone.
- The en route 2022 actual service units (376K) were 1.0% higher than the determined service units (372K).
- The en route 2022 actual total costs were 0.3M€₂₀₁₇ (-1.8%) lower than determined. The main driver was the lower depreciation costs (-0.2M€₂₀₁₇, or -7.3%). The NSA explained that some investment projects and asset acquisitions were behind schedule or bought at a lower price.
- SE Oro Navigacija spent 3.6M€₂₀₁₇ in 2022 related to costs of investments, 6.1% less than determined (3.9M€₂₀₁₇), driven by lower depreciation costs as explained above.
- The en route actual unit cost incurred by users in 2022 was 58.65€.

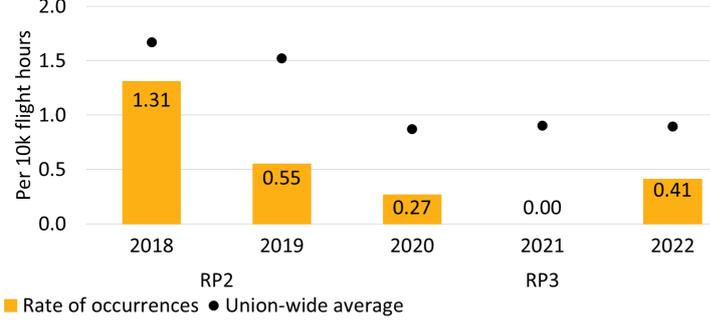
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



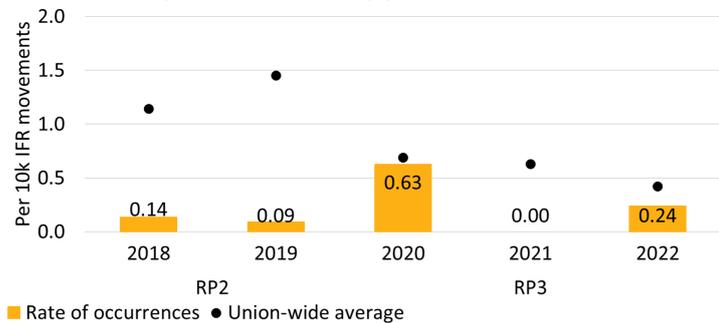
Oro Navigacija exceeds the RP3 EoS_M targets reaching level D for four MOs in 2022.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour in 2022 increased relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement increased in 2022 relative to 2021. The rate was below the Union-wide average.

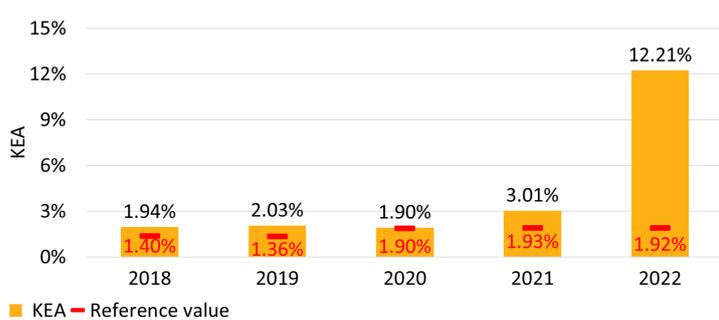
Use of automated safety data recording systems



Lithuania does not use automated safety data recording systems for RIs or for SMIs.

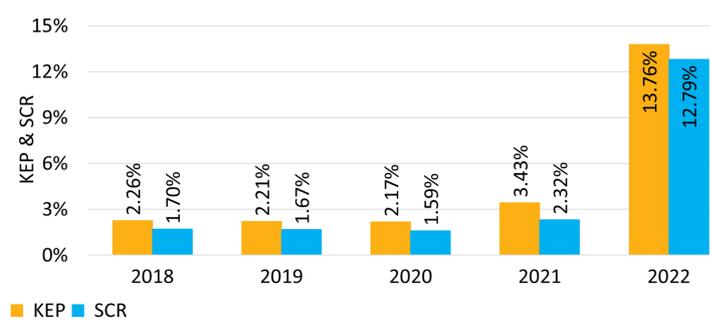
Environment

KEA performance



Lithuania did not achieve its 2022 KEA target by 10.29 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



Lithuania did not make shorter routes available due to geopolitical situation, leading airspace users planning longer routes.

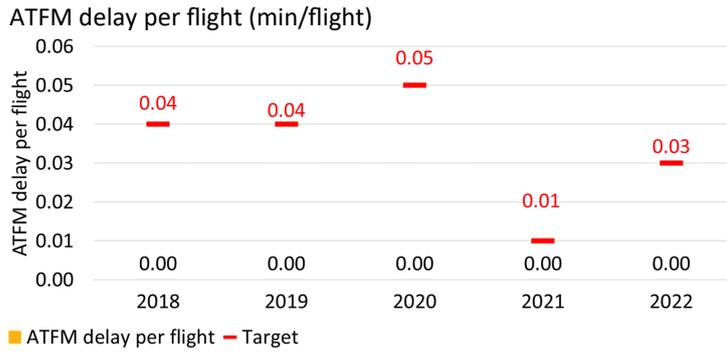
No Lithuanian airport is regulated under the performance and charging scheme.

No Lithuanian airport is regulated under the performance and charging scheme.

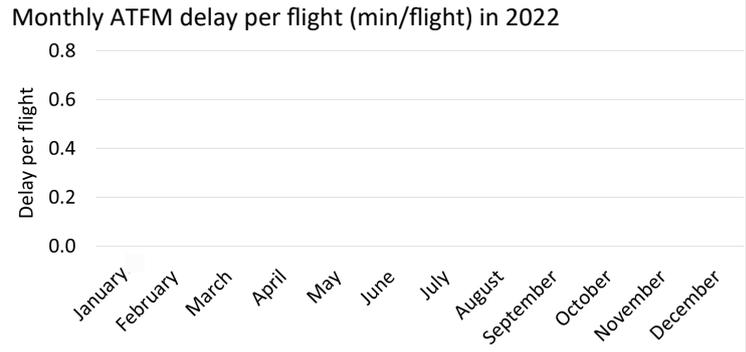
Lithuania did not declare any of its airports as subject to the performance and charging Regulation.

Lithuania did not declare any of its airports as subject to the performance and charging Regulation.

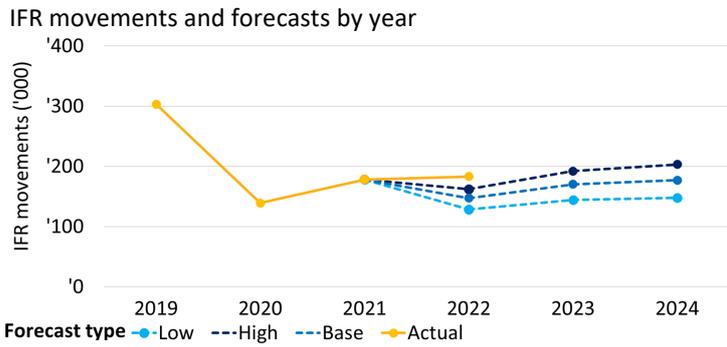
Capacity



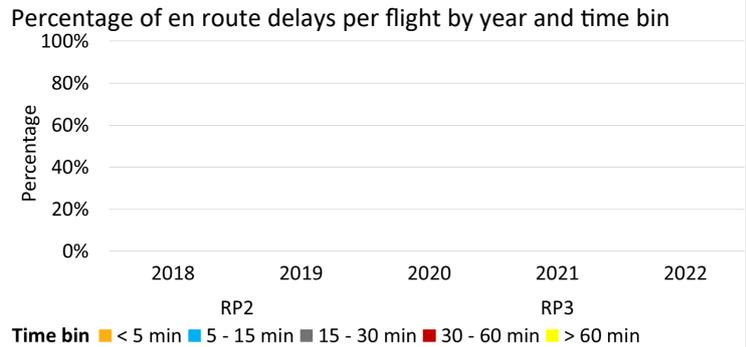
Delays in Lithuania remained at zero minutes per flight. Performance in Lithuania exceeded the local target in 2022.



There were no ATFM delays in Lithuania in 2022.

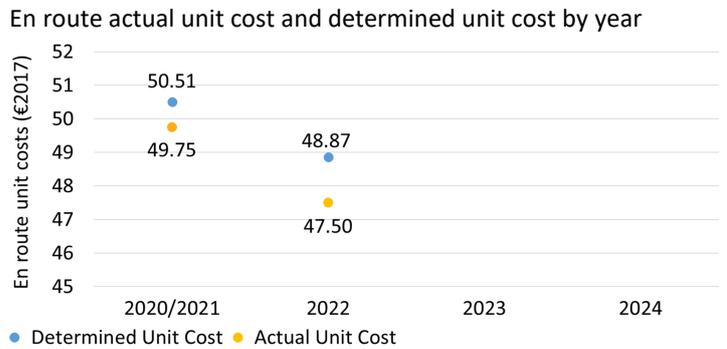


IFR movements in Lithuania were 13% above the high scenario of the 2022 June forecast in 2022.



There were no en route delays in Lithuania in 2022.

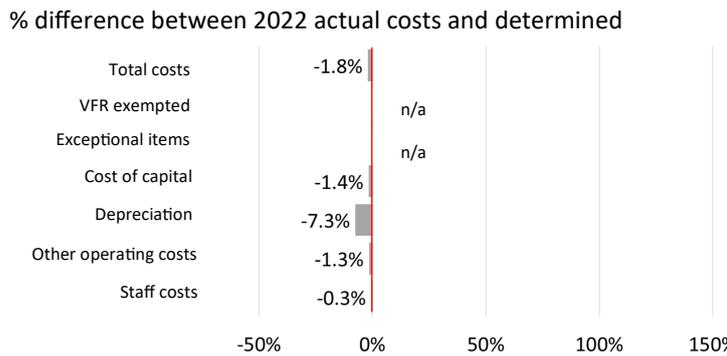
Cost-efficiency



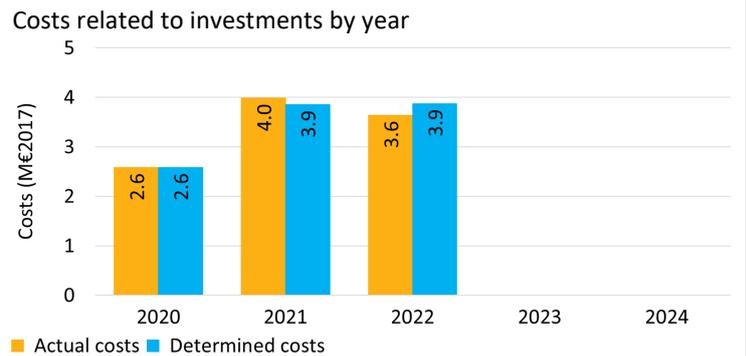
The 2022 en route actual unit cost was lower than the determined unit cost.

Lithuania does not have a terminal charging zone.

Lithuania did not declare any terminal charging zones as subject to the performance and charging Regulation.



In 2022, total costs were 1.8% lower compared to determined, mainly due to lower depreciation costs.



SE Oro Navigacija 2022 costs related to investments were 6.1% lower than planned mainly due to delay in some investments.

Comments from the Performance Review Body:

Safety:

- MATS achieved its RP3 EoSM targets in 2020 and has since maintained this level.
- Despite a significant traffic increase in 2022, Malta's runway incursion rate decreased, demonstrating an improving trend. Malta did not record any separation minima infringements (SMIs).
- MATS could improve its safety management by implementing automated safety data recording systems.

Environment:

- Malta achieved a KEA performance of 1.90% compared to its target of 1.80% and did not contribute positively towards achieving the Union-wide target. Performance improved by 1.21 percentage points compared to 2021.
- The NSA states that despite the optimised route profiles, the sanctions imposed by Algeria and Morocco impacted the efficiency in its airspace.
- Both KEP and SCR improved compared to 2021.
- The share of CDO flights increased by 4.24% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.62 to 0.67 min/flight, while additional taxi out time increased from 1.1 to 1.81 min/flight.

Capacity:

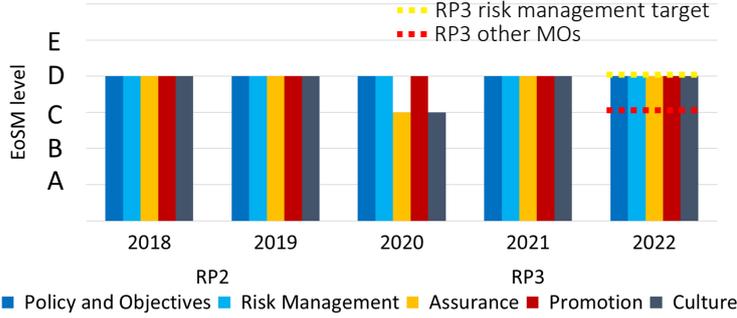
- Malta registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.01.
- The average number of IFR movements was 23% below 2019 levels in Malta in 2022.
- The number of ATCOs in OPS is planned to increase by 19% by the end of RP3, however, the actual value decreased in Malta ACC in 2022 due to lower-than-planned levels of recruitment and remained below the 2022 plan.

Cost-efficiency:

- The en route 2022 actual unit cost of Malta was 27.83€₂₀₁₇, 1.4% higher than the determined unit cost (27.44€₂₀₁₇). The terminal 2022 actual unit cost was 114.43€₂₀₁₇, 34% lower than the determined unit cost (173.37€₂₀₁₇).
- The en route 2022 actual service units (667K) were 18% lower than the determined service units (811K).
- The en route 2022 actual total costs were 3.7M€₂₀₁₇ (-17%) lower than determined. The reduction was mainly due to significant decreases in other operating costs (-2.7M€₂₀₁₇, or -33%) and depreciation costs (-1.1M€₂₀₁₇, or -39%). The NSA did not provide explanations for the variations of costs.
- MATS spent 2.5M€₂₀₁₇ in 2022 related to costs of investments, 42% less than determined (4.3M€₂₀₁₇), as a result of lower depreciation and cost of capital. The NSA did not provide an explanation for the substantial decrease.
- The discrepancies regarding costs of investments are significant. The PRB invites the NSA to analyse the discrepancies, identify their reasons, and the Member State to take immediate, adequate, and proportionate action to ensure the implementation of the investment plans to avoid future capacity gaps.
- Malta did not provide the required data in time and with the required quality. The PRB recommends that the NSA put in place a solid process for reporting in order to fulfill the Regulation requirements.
- The en route actual unit cost incurred by users in 2022 was 34.39€, while the terminal actual unit cost incurred by users was 190.37€.

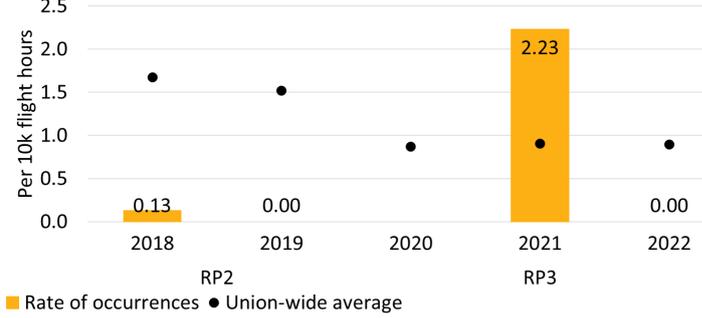
Safety

Main ANSP's effectiveness of safety management (EoSM) by year



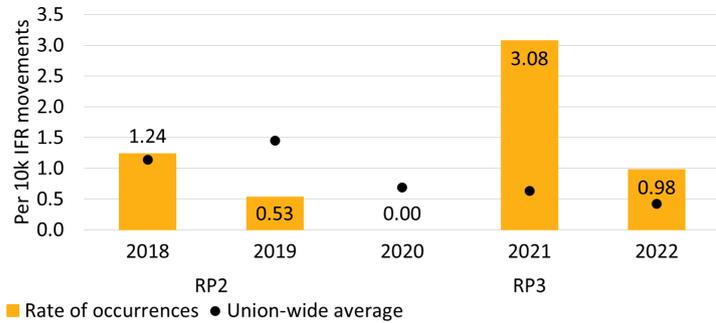
Malta (MATS) exceeded the targets achieving level D in all five MOs.

Rate of separation minima infringement (SMI) by year



Malta did not record any SMIs in 2022.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was above the Union-wide average.

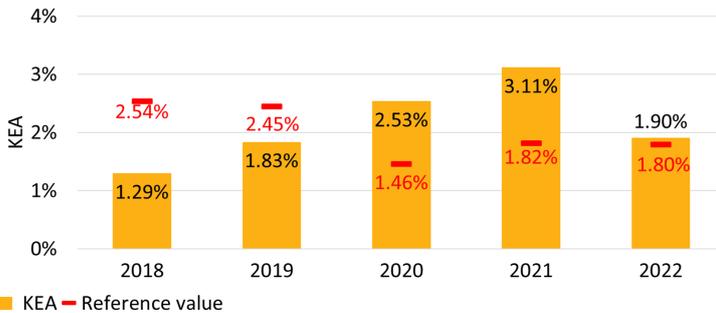
Use of automated safety data recording systems



Malta does not use automated safety data recording systems neither for RIs nor for SMIs.

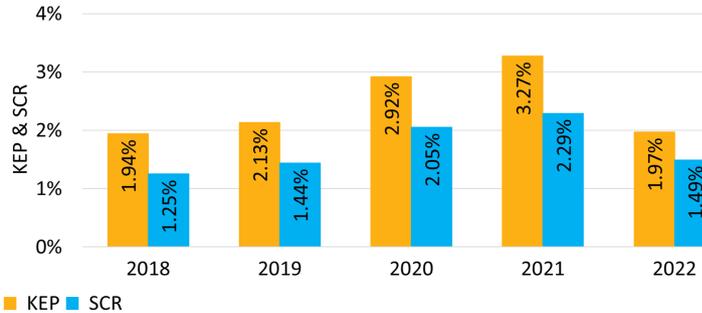
Environment

KEA performance



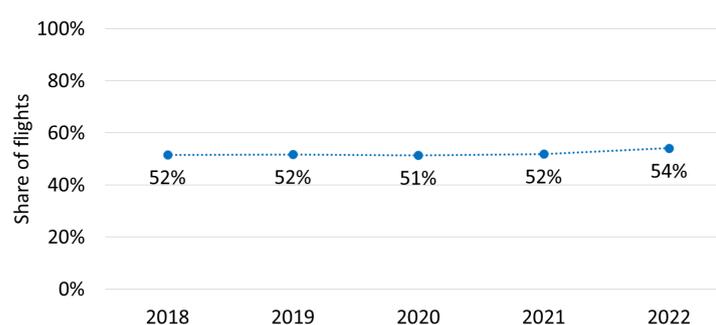
Malta did not achieve its 2022 KEA target by 0.10 percentage points, and performance improved relative to 2021.

KEP and SCR performance



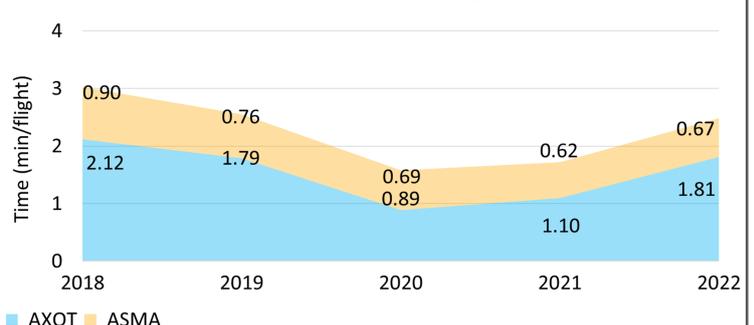
Malta made shorter routes (SCR) available in 2022, leading to air-space users planning shorter routes.

Share of CDO per year



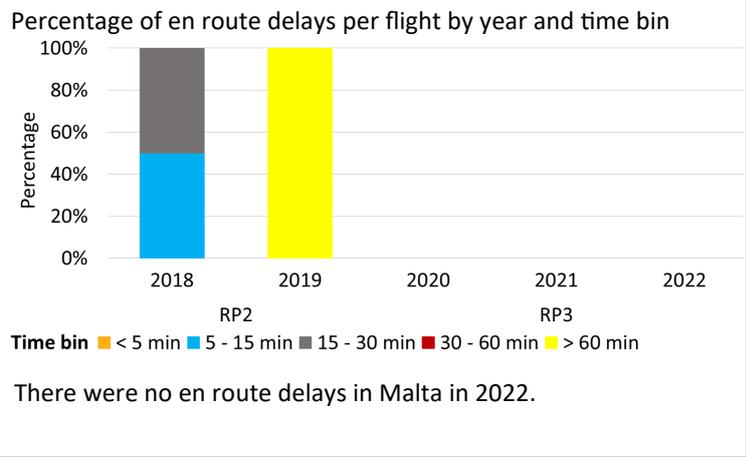
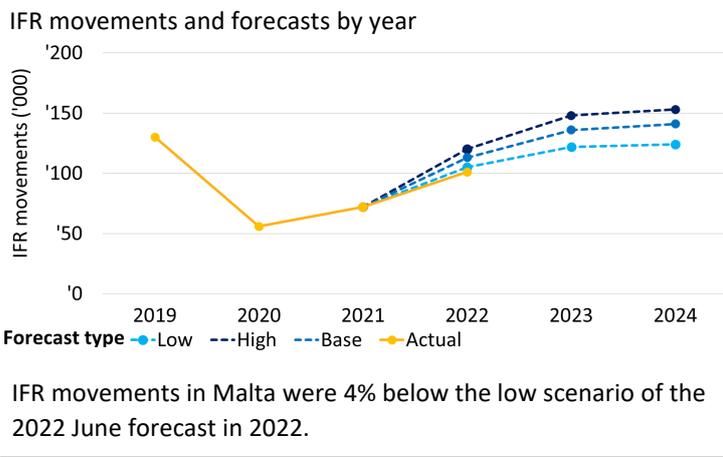
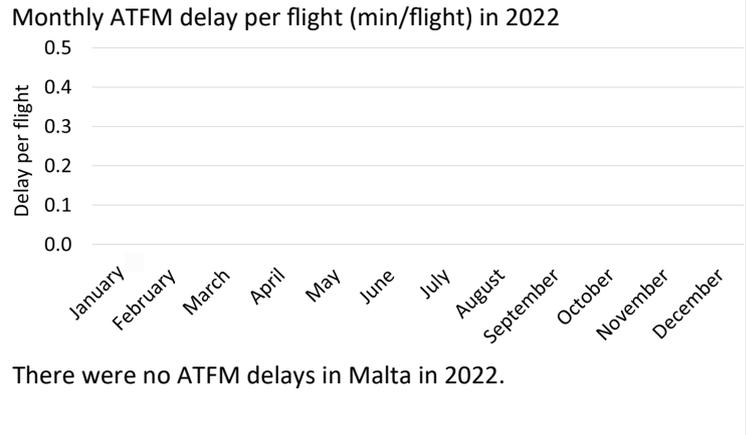
The share of flights conducting CDO at Malta International Airport remained stable in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

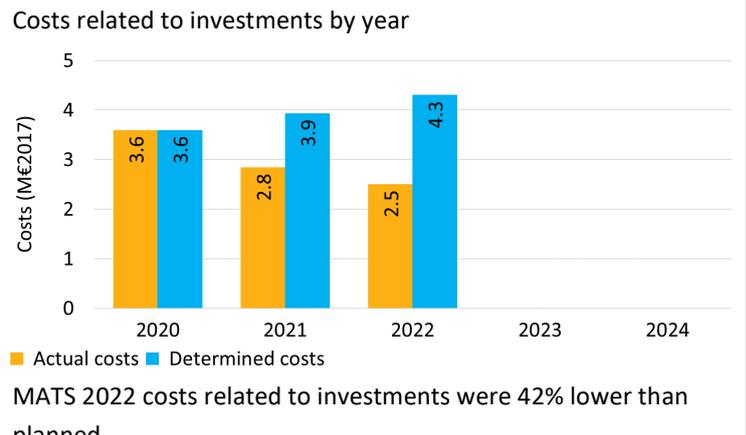
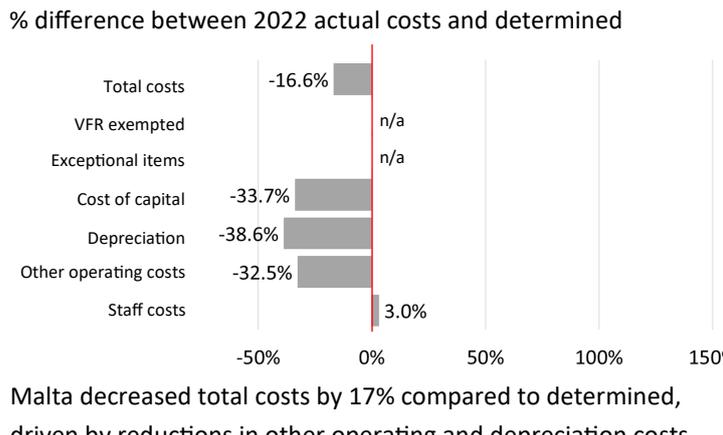
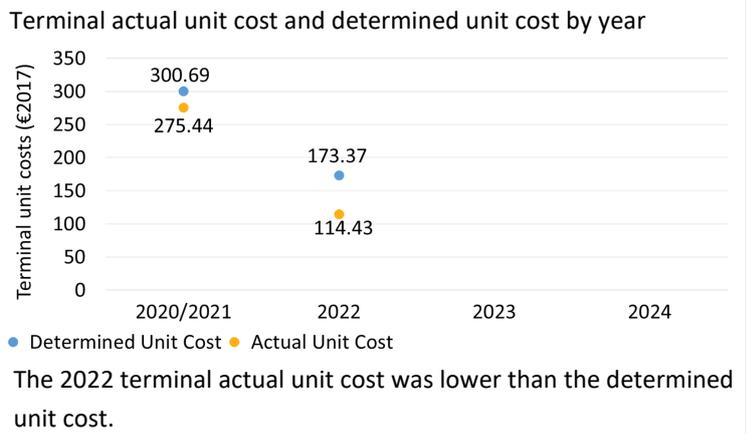
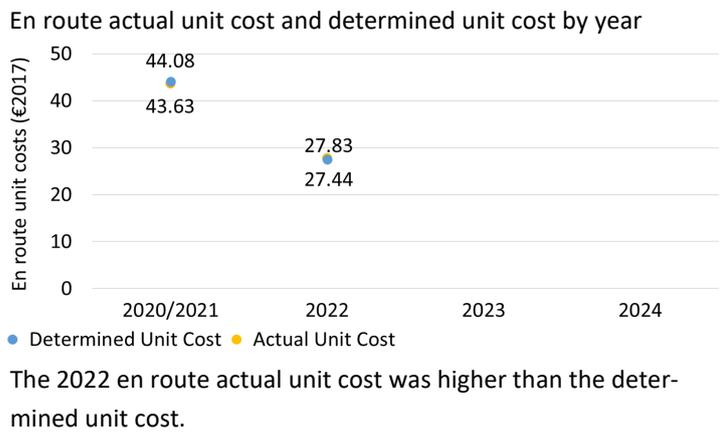


Terminal airspace users spent an additional 2.48 minutes per flight either taxiing or holding at Malta International Airport.

Capacity



Cost-efficiency



Comments from the Performance Review Body:

Safety:

- LVNL achieved its RP3 EoSM targets levels in 2021 and maintained these levels in 2022. Specific measures were implemented ensuring continuous safety improvements (e.g. annual update of safety manual, establishment of a risk-based safety plan, and update of safety risk target document and corresponding unit safety case).
- MUAC achieved its RP3 EoSM target levels in 2021 and continued to further improve safety performance by increasing to level D in two areas.
- The Netherlands did not provide monitoring data for separation minima infringements nor runway incursions in 2022.
- LVNL could improve its safety management by implementing automated safety data recording systems for runway incursions.

Environment:

- The Netherlands achieved a KEA performance of 3.04% compared to its target of 2.62% and did not contribute positively towards achieving the Union-wide target. KEA deteriorated compared to 2021.
- Both KEP and SCR values have improved by 4% compared to 2021.
- The share of CDO flights decreased by 8.48% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.86 to 1.12min/flight, while additional taxi out time increased from 2.19 to 2.77min/flight.
- The NSA states that the worsening environmental performance was due to internal and external issues, such as weather effects, maintenance at Schiphol airport, and network measures to reduce traffic demand for Reims ACC during their 4-FLIGHT implementation.

Capacity:

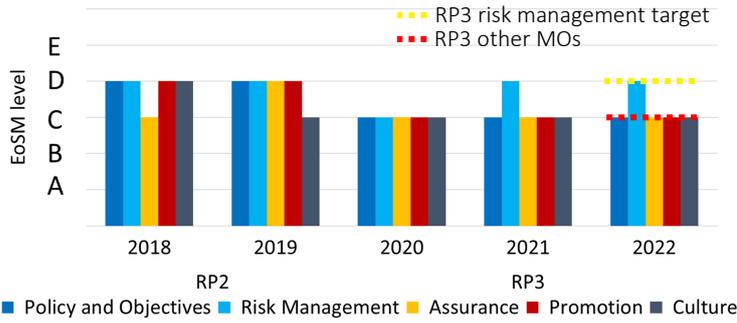
- The Netherlands registered 0.04 minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.14.
- The average number of IFR movements was 18% below 2019 levels in the Netherlands in 2022.
- A decrease in the number of ATCOs in OPS is planned in Amsterdam ACC by the end of RP3. The actual number decreased in 2022 and was below the 2022 plan.

Cost-efficiency:

- The en route 2022 actual unit cost of the Netherlands was 80.81€₂₀₁₇, 8.8% lower than the determined unit cost (88.63€₂₀₁₇). The terminal 2022 actual unit cost was 182.59€₂₀₁₇, 18% lower than the determined unit cost (221.58€₂₀₁₇).
- The en route 2022 actual service units (2,586K) were in line with the determined service units (2,593K).
- In 2022, the en route actual total costs were 21M€₂₀₁₇ (-9.1%) lower compared to determined. It was attributable to the substantial reduction in staff cost (-25M€₂₀₁₇, or -17%) mainly due to lower full-time equivalents and pension premium than planned.
- Even though net book value of fixed assets was 12% lower than planned, LVNL spent 23M€₂₀₁₇ in 2022 related to costs of investments, in line with the determined.
- The en route actual unit cost incurred by users in 2022 was 101.15€, while the terminal actual unit cost incurred by users was 246.52€.

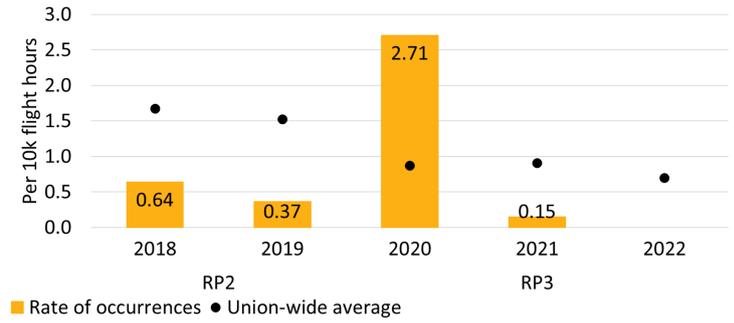
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



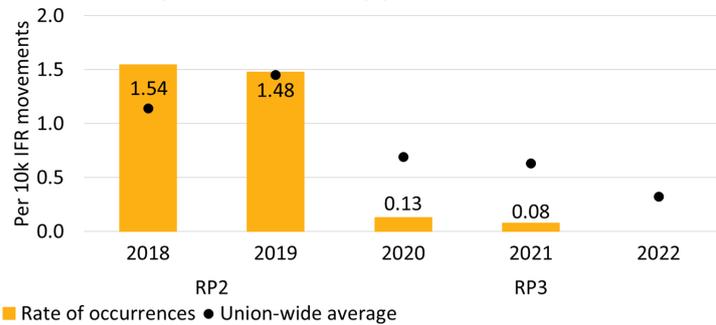
LVNL achieved the targets in 2021 earlier than indicated in their performance plan.

Rate of separation minima infringement (SMI) by year



The Netherlands did not provide monitoring data for SMIs in 2022.

Rate of runway incursions (RIs) by year



The Netherlands did not provide monitoring data for RIs in 2022.

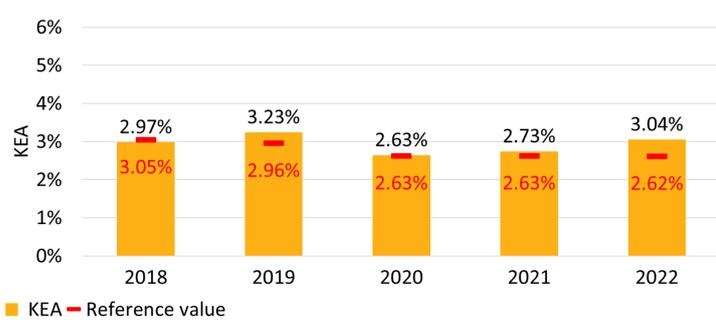
Use of automated safety data recording systems



The Netherlands (MUAC and LVNL) uses the automated safety data recording systems for SMIs.

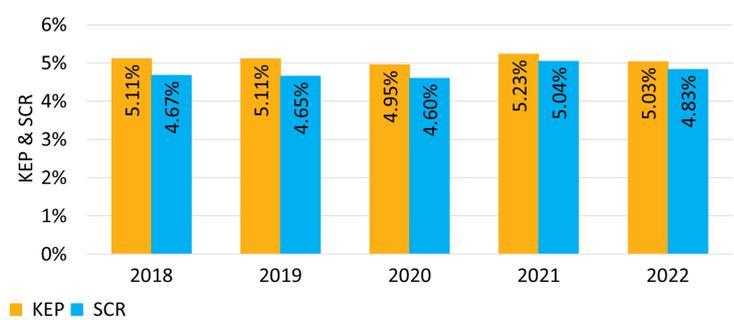
Environment

KEA performance



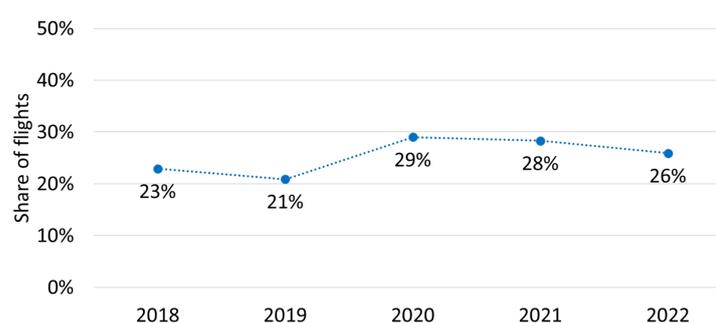
The Netherlands did not achieve its 2022 KEA target by 0.42 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



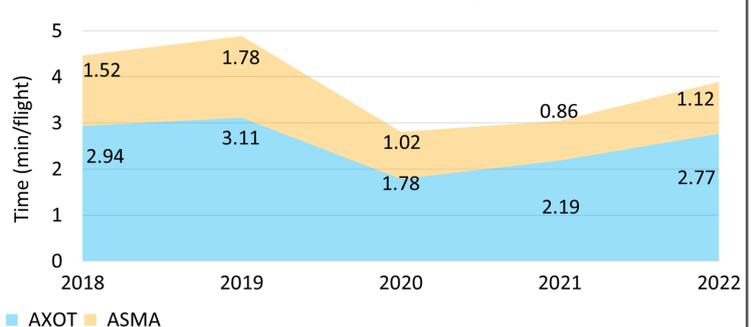
The Netherlands made shorter routes (SCR) available in 2022, leading to airspace users planning shorter routes.

Share of CDO per year



The Netherlands' CDO performance worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 3.89 minutes per flight either taxiing or holding at Amsterdam airport.

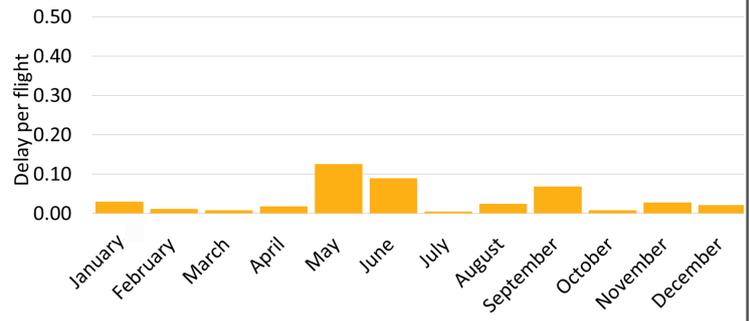
Capacity

ATFM delay per flight (min/flight)



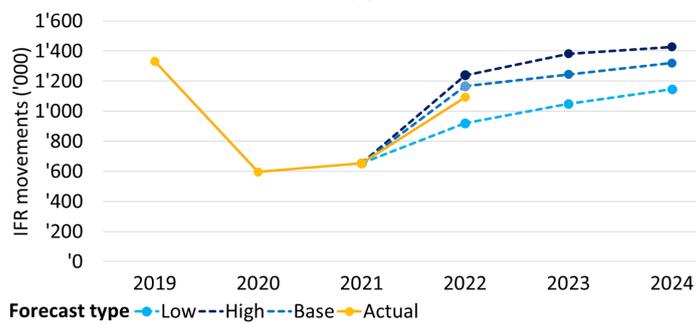
Delays in the Netherlands remained at 0.04 minutes per flight. Performance exceeded the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



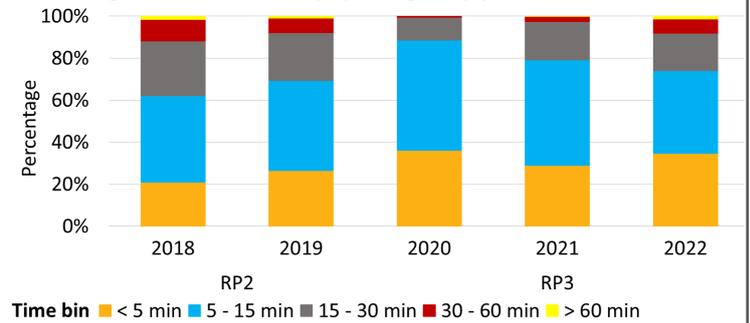
Most of the delays accumulated during May, June, and September, due to minor issues with ATC capacity and adverse weather.

IFR movements and forecasts by year



IFR movements in the Netherlands were 6% below the base scenario of the 2021 October forecast in 2022.

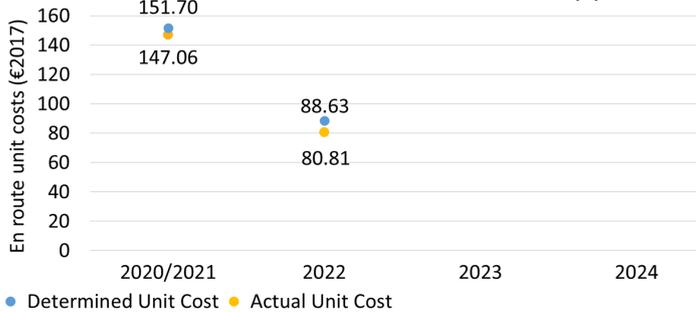
Percentage of en route delays per flight by year and time bin



The share of flights with delays longer than 15 minutes increased by 5 percentage points but was lower than pre-COVID values.

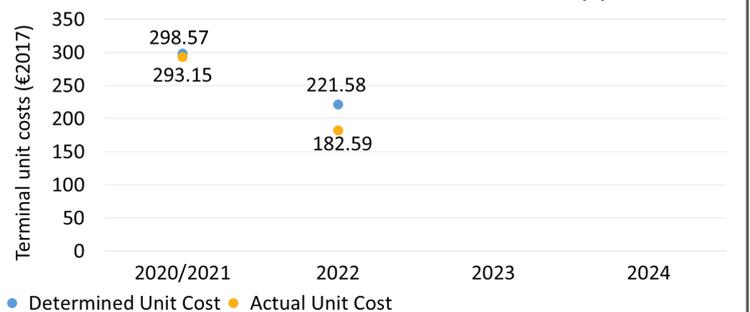
Cost-efficiency

En route actual unit cost and determined unit cost by year



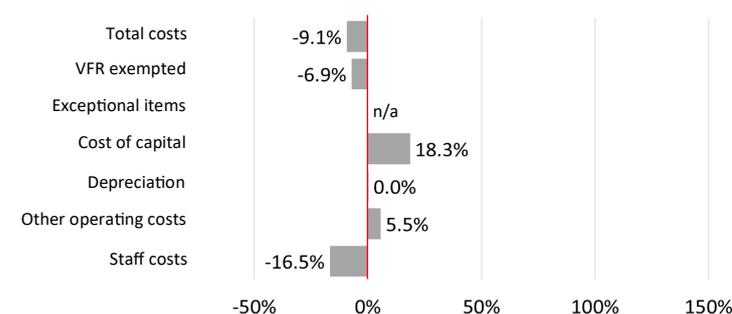
The 2022 en route actual unit cost was lower than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



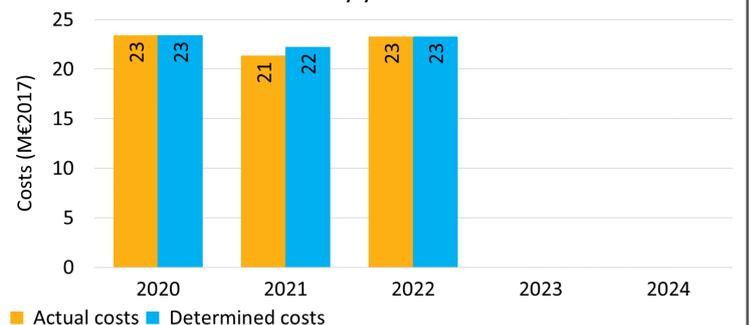
The 2022 terminal actual unit cost was lower than the determined unit cost.

% difference between 2022 actual costs and determined



The total actual cost in 2022 was 9.1% lower than determined due to significant reduction in staff costs.

Costs related to investments by year



LVNL 2022 costs related to investments were in line with the determined.

Comments from the Performance Review Body:

Safety:

- Avinor ANS achieved RP3 EoSM targets for four management objectives but failed to maintain the previously achieved target level D for safety risk management. Avinor ANS should ensure that adequate resources are in place for conducting the annual reviews in order to achieve level D again.
- Norway recorded a decrease in the rate of runway incursions but an increase of the rate of separation minima infringements. Avinor ANS should review the reasons for this increase and take appropriate mitigating actions, as necessary.
- Avinor ANS could improve its safety management by implementing automated safety data recording systems.

Environment:

- Norway achieved a KEA performance of 1.32% compared to its target of 1.55% and contributed positively towards achieving the Union-wide target. KEA improved compared to 2021.
- Both KEP and SCR deteriorated in comparison with 2021, and had the same value (2.26%), meaning airlines planned the most efficient routes available.
- The share of CDO flights decreased by 6.44% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.53 to 0.68 min/flight, while additional taxi out time increased from 2.87 to 3.26 min/flight.
- Airport data for Bergen airport was not reported for 2022 despite being subject to monitoring as per the Regulation.

Capacity:

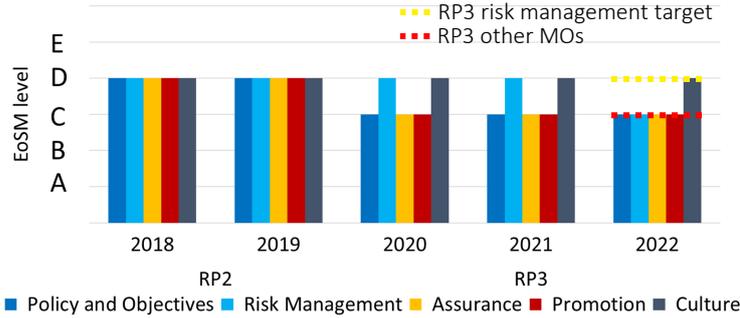
- Norway registered 0.01 minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.08.
- The average number of IFR movements was 11% below 2019 levels in Norway in 2022.
- An increase in the number of ATCOs in OPS is expected by the end of RP3 in Bodo ACC, with a more significant increase in Oslo and Stavanger ACCs. The actual value in Stavanger ACC was in line with the 2022 plan; while in Bodo and Oslo ACCs the actual values remain below the 2022 plans.

Cost-efficiency:

- The en route 2022 actual unit cost of Norway was 54.57€₂₀₁₇, 7.0% lower than the determined unit cost (58.67€₂₀₁₇). The terminal 2022 actual unit cost was 192.42€₂₀₁₇, 2.0% lower than the determined unit cost (196.29€₂₀₁₇).
- The en route 2022 actual service units (2,071K) were slightly higher (+1.1%) than the determined service units (2,048K).
- The en route 2022 actual total costs were 7.1M€₂₀₁₇ (-5.9%) lower than determined. The decrease was mainly driven by lower staff costs (-8.5M€₂₀₁₇, or -11%) largely due to the restructuring of the organisation.
- Avinor ANS spent 28.1M€₂₀₁₇ in 2022 related to costs of investments, 1.5% lower than determined (28.6M€₂₀₁₇). The NSA explained that costs related to leases were by mistake double-counted in the determined costs, and some projects have been delayed compared to planned.
- The en route actual unit cost incurred by users in 2022 was 55.12€, while the terminal actual unit cost incurred by users was 181.06€.

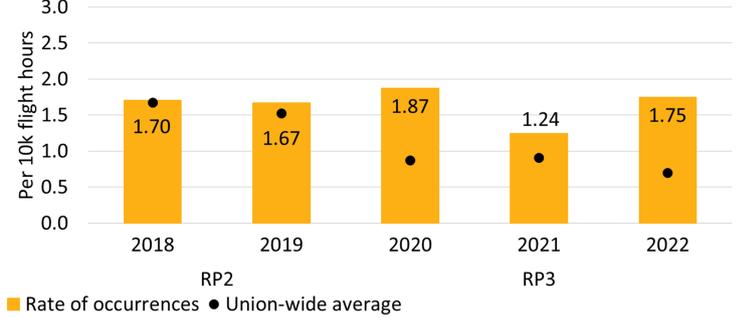
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



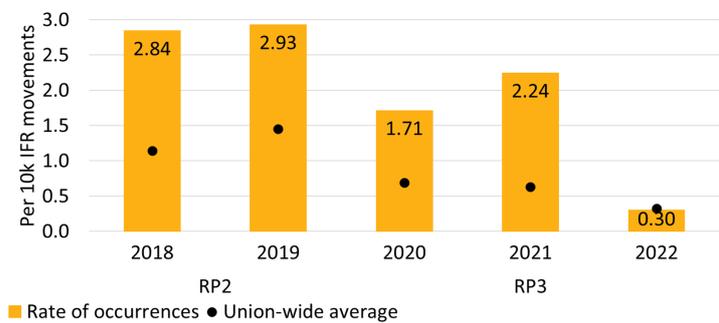
Avinor ANS has achieved the RP3 targets in four management areas but degraded in safety risk management over 2022.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour increased in 2022 relative to 2021. The rate was above the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was below the Union-wide average.

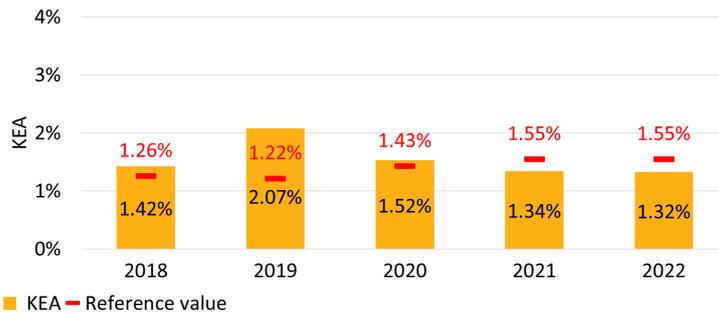
Use of automated safety data recording systems



Norway does not use automated safety data recording systems for RIs or for SMIs.

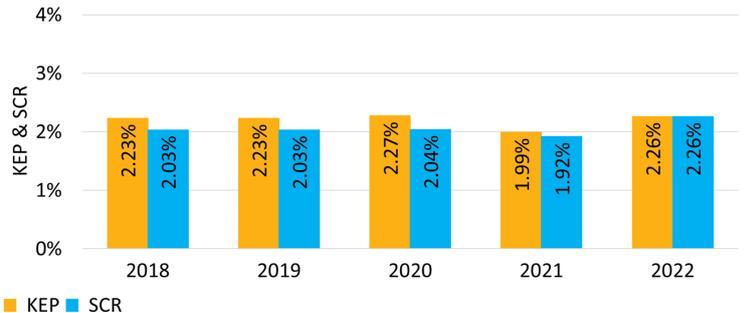
Environment

KEA performance



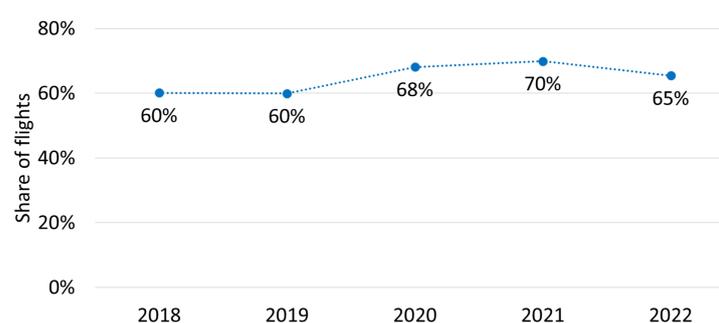
Norway achieved its 2022 KEA target by 0.23 percentage points, and performance improved relative to 2021.

KEP and SCR performance



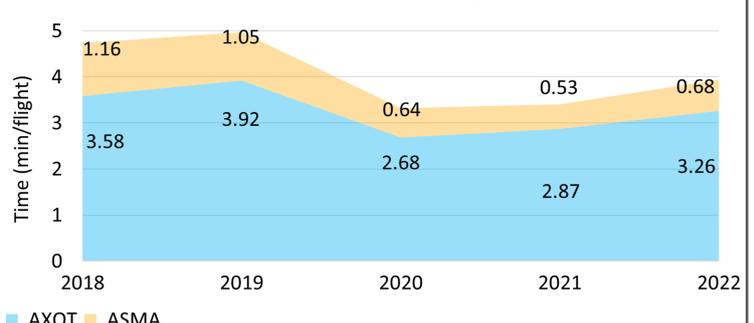
Norway did not make shorter routes (SCR) available to airspace users in 2022, who were not able to plan shorter routes.

Share of CDO per year



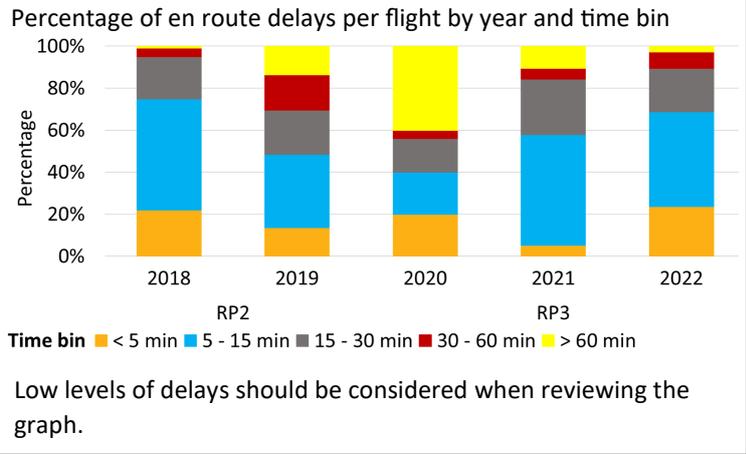
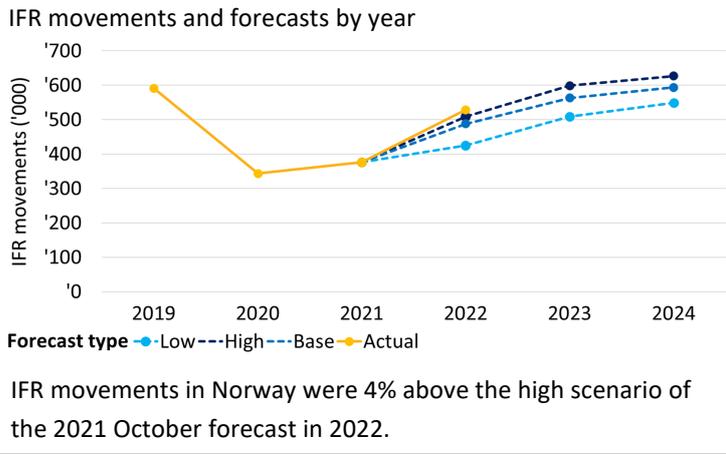
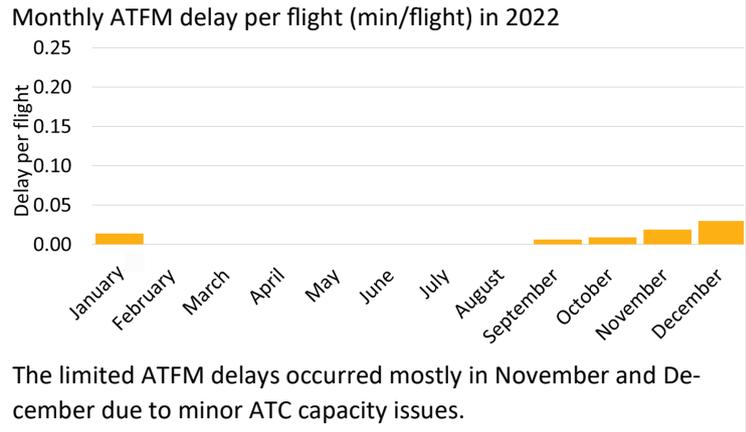
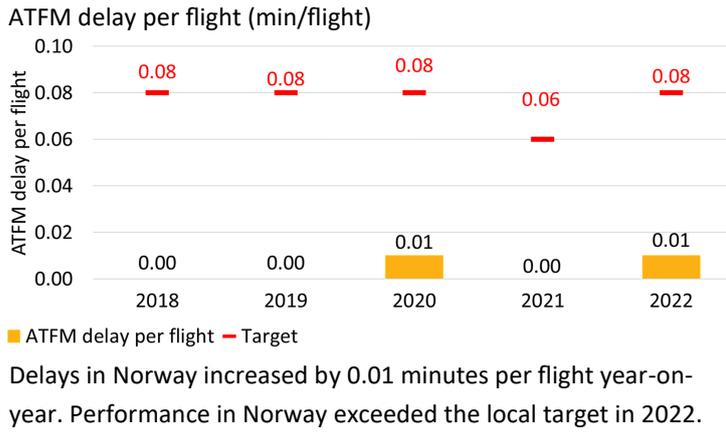
Norway worsened its CDO performance compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

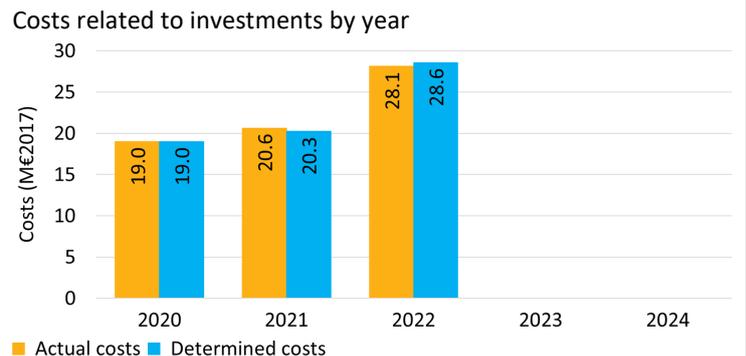
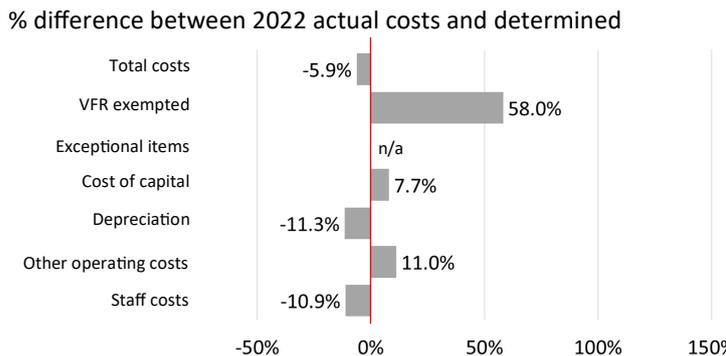
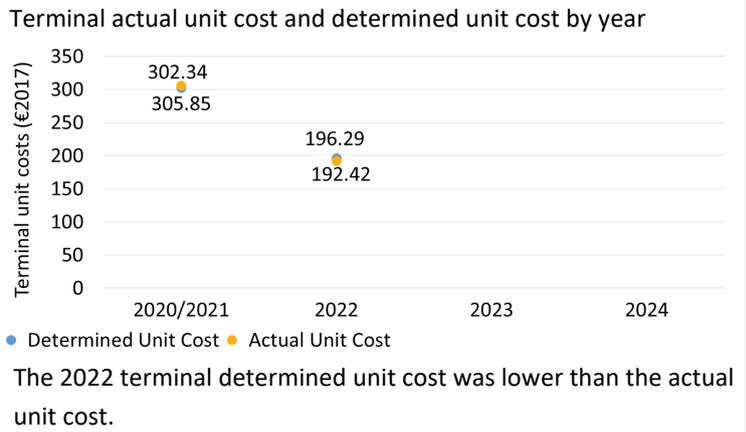
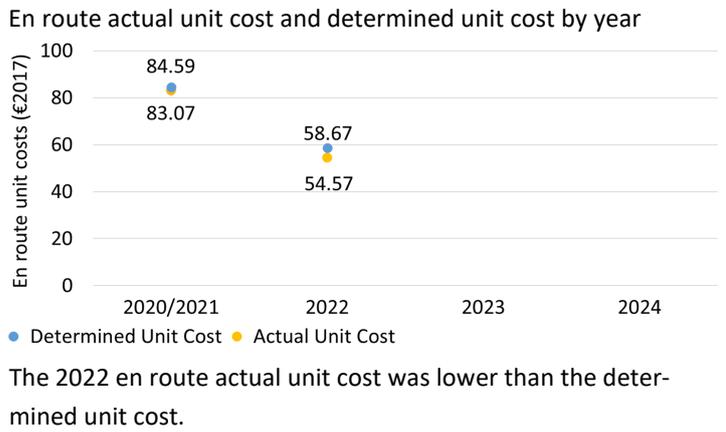


Terminal airspace users spent an additional 3.94 minutes per flight either taxiing or holding at Oslo airport.

Capacity



Cost-efficiency



In 2022, the total actual cost decreased by 5.9% due to a reduction in staff and depreciation costs.

Avinor ANS 2022 costs related to investments were 1.5% lower than determined.

Comments from the Performance Review Body:

Safety:

- PANSAs has already achieved RP3 targets in 2020 but continued improvements and exceeded the RP3 EoS targets in 2022 with level D for all management objectives.
- Port Lotniczy Bydgoszcz S.A. achieved the RP3 targets for four other management objectives but requires improvement for safety risk management.
- Warmia i Mazury sp. z o.o. improved its performance in relation to safety risk management and successfully achieved all RP3 targets in 2022.
- Poland recorded an increase in the rate of runway incursions and significantly higher rate of separation minima infringements in 2022 relative to 2021. The rate of runway incursions is above the Union-wide average. PANSAs should review the reasons for this increase and take appropriate mitigation actions, as necessary.
- Poland could improve its safety management by implementing automated safety data recording systems.

Environment:

- Poland achieved a KEA performance of 4.79% compared to its target of 1.65% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 2.46 percentage points compared to 2021.
- SCR and KEP were at the highest levels seen in the past five years.
- The NSA states that the worsening environmental performance was largely due to external factors linked to the geopolitical situation (Belarus and Ukraine), leading to route extensions and increased military activities. Other factors include weather and user preferences.
- The share of CDO flights decreased by 8.23% compared to 2021.
- During 2022, additional time in terminal airspace increased from 1.05 to 1.27 min/flight, while additional taxi out time increased from 2.11 to 2.28 min/flight.

Capacity:

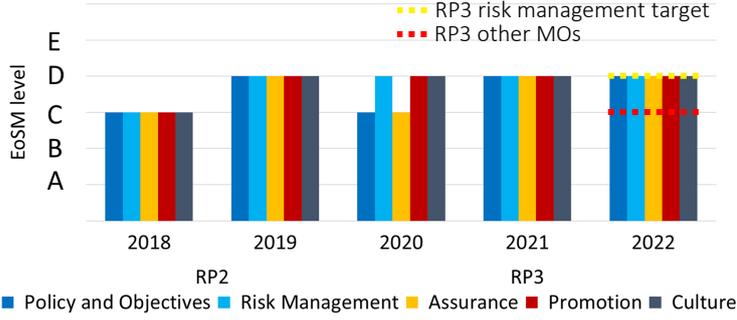
- Poland registered 1.32 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 1.30 during the post-ops adjustment process.
- Average en route ATFM delay per flight was further adjusted to 1.09 minutes per flight due to the exceptional event related to Russia's war of aggression against Ukraine, still not achieving the local target value of 0.12.
- The average number of IFR movements was 31% below 2019 levels in Poland in 2022.
- An 11% increase in the number of ATCOs in OPS is planned by the end of RP3, with the actual value remaining below the 2022 plan in Warsaw ACC.

Cost-efficiency:

- The en route 2022 actual unit cost of Poland was 54.12€₂₀₁₇, 15% higher than the determined unit cost (47.05€₂₀₁₇). The terminal zone 1 actual unit cost was 119.14€₂₀₁₇, in line with the determined unit cost (118.48€₂₀₁₇), while the terminal zone 2 actual unit cost was 228.41€₂₀₁₇, 11% lower than the determined unit cost (255.46€₂₀₁₇).
- The en route 2022 actual service units (3,129K) were 22% lower than the determined service units (3,991K).
- In 2022, the en route actual total costs were 18M€₂₀₁₇ (-9.8%) lower than determined. Staff costs decreased (-9.1 M€₂₀₁₇, or -8.6%) as a result of higher inflation than expected, while other operating costs decreased (-8.9M€₂₀₁₇, or -19%) mainly due to cost containment measures in response to Russia's war of aggression against Ukraine.
- Poland presented a deviation from the criteria to achieve capacity targets, which was considered justified. Considering that costs are significantly lower and that the 2022 en route capacity targets have not been achieved, the situation raises serious concern. The PRB invites the NSA to analyse the discrepancies and identify their reasons and the Member State to rectify the situation to ensure that the additional means granted through the capacity deviation are actually used to address the capacity issues.
- PANSAs spent 45M€₂₀₁₇ in 2022 related to costs of investments, in line with the plan. However, due to COVID-19 and Russia's war of aggression against Ukraine, some projects had to be adjusted (postponed, change of scope, and change of value). The slow up in investments has been offset by the increase in cost of capital due to higher WACC than planned.
- The en route actual unit cost incurred by users in 2022 was 61.12€, while the terminal zone 1 actual unit cost incurred by users was 133.20€ and 258.28€ for terminal zone 2.

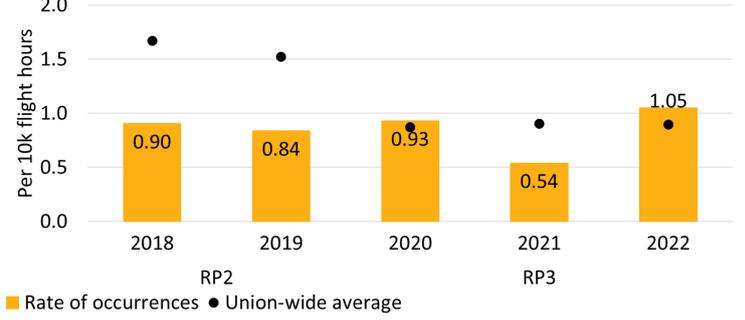
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



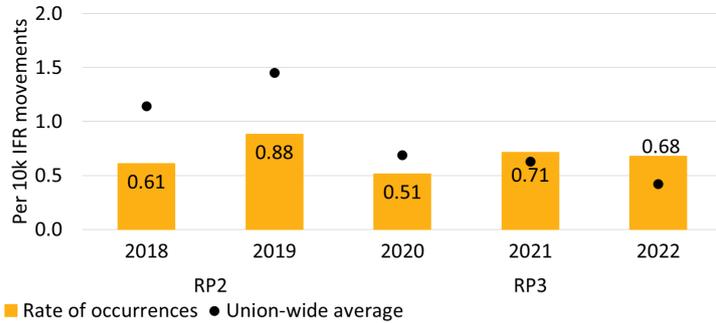
PANSA exceeded the RP3 targets achieving level D in all five MOs since 2021.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour increased in 2022 relative to 2021. The rate was above the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased relative to 2021. The rate was above the Union-wide average.

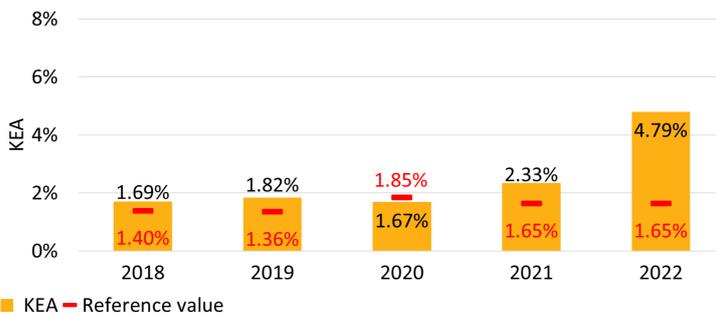
Use of automated safety data recording systems



Poland does not use automated safety data recording systems for RIs or for SMIs.

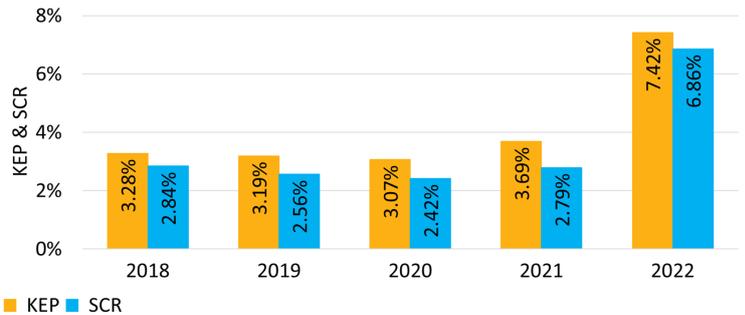
Environment

KEA performance



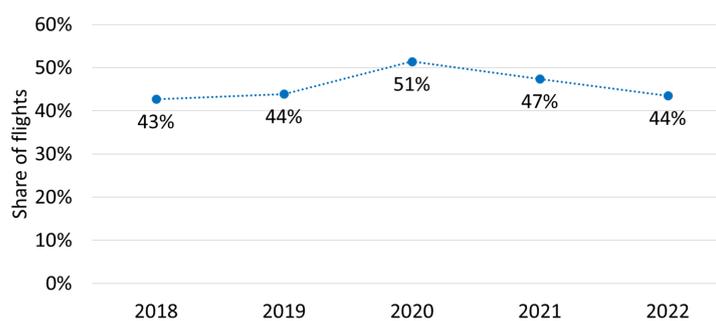
Poland did not achieve its 2022 KEA target by 3.14 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



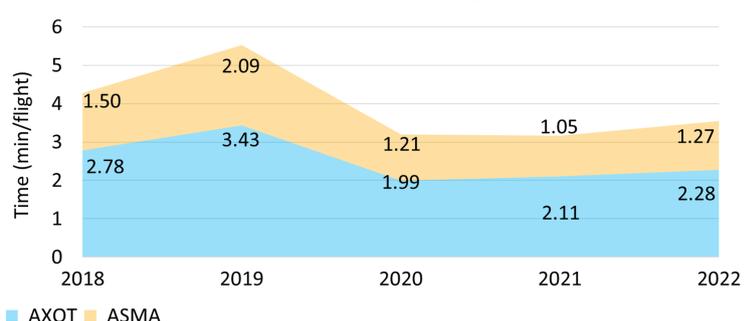
Poland did not make shorter routes available due to geopolitical situation, leading airspace users planning longer routes.

Share of CDO per year



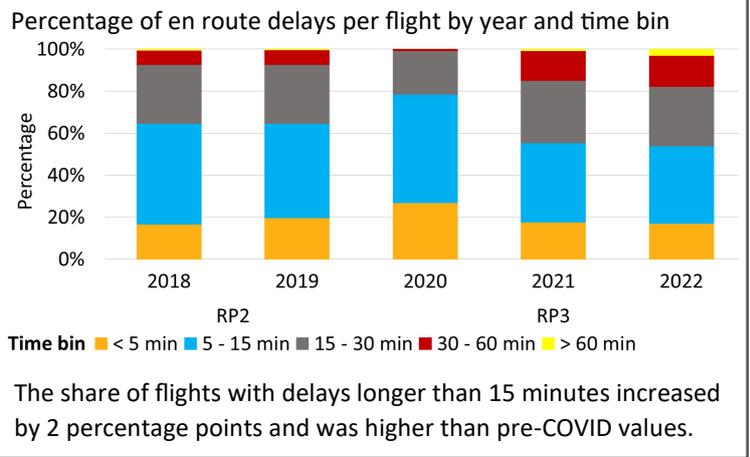
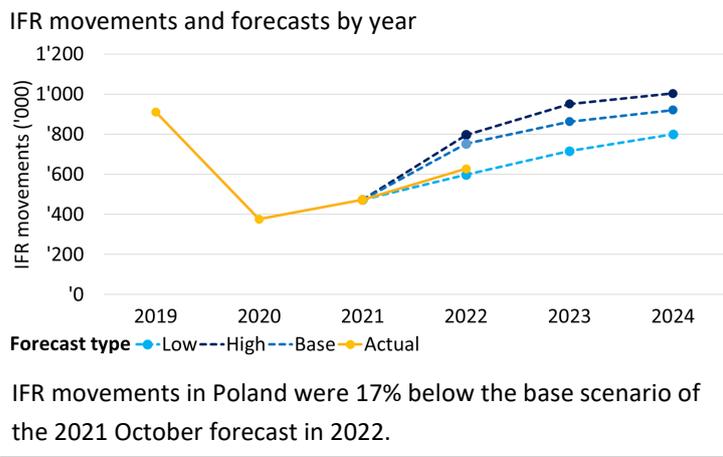
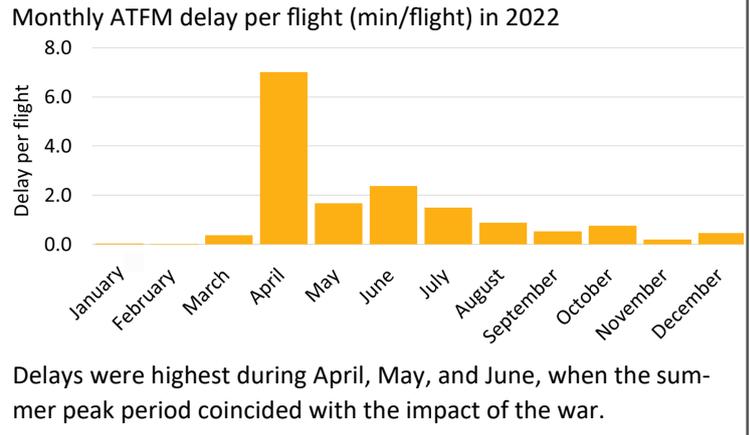
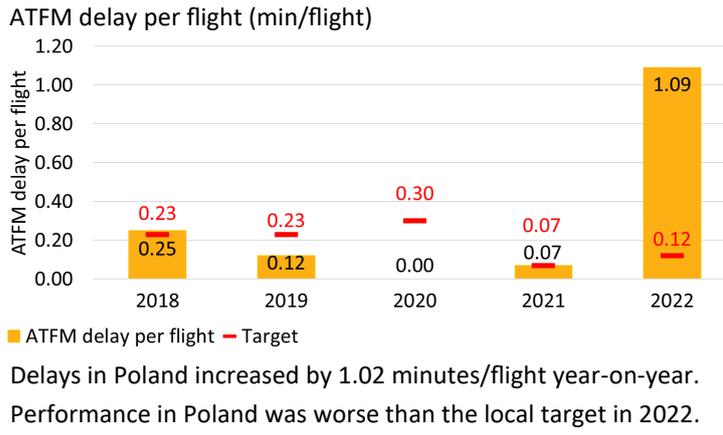
Poland's CDO performance worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

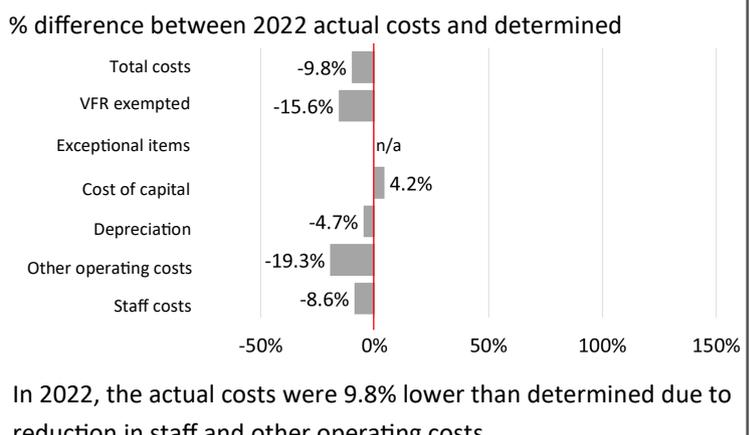
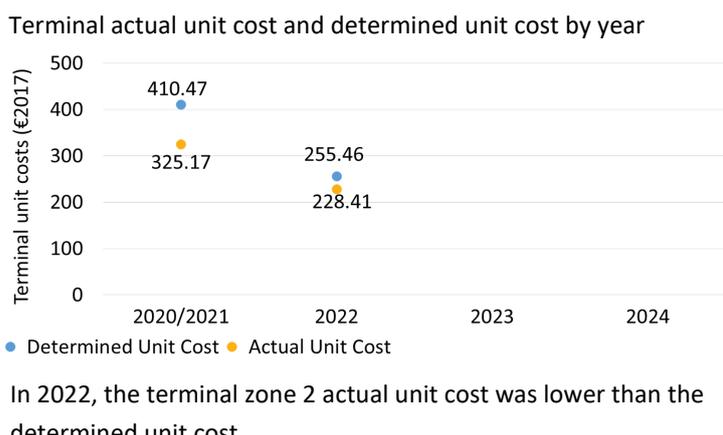
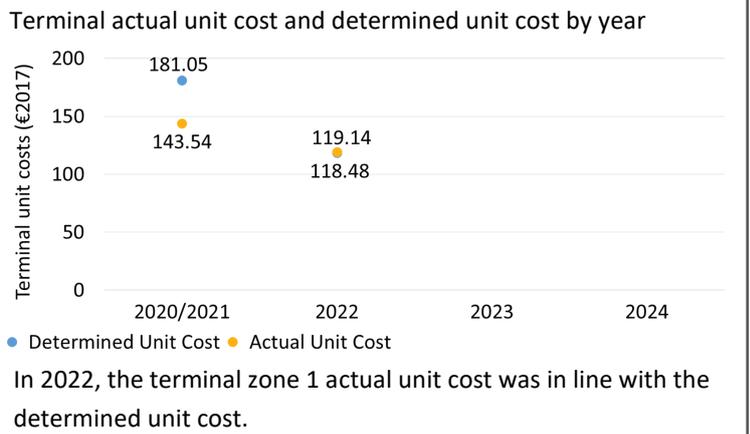
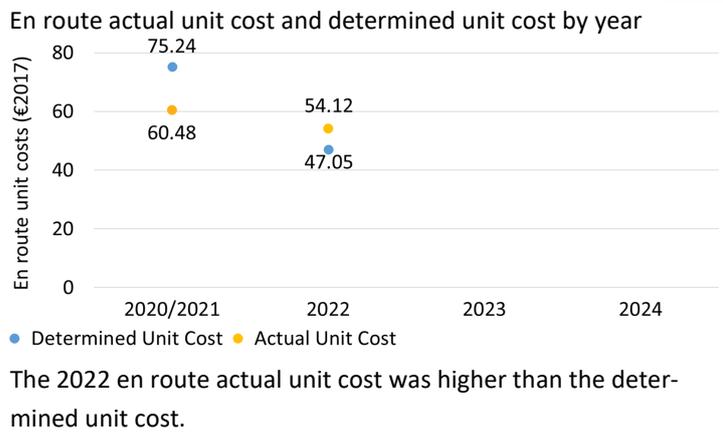


Terminal airspace users spent an additional 3.55 minutes per flight either taxiing or holding at Warsaw airport.

Capacity

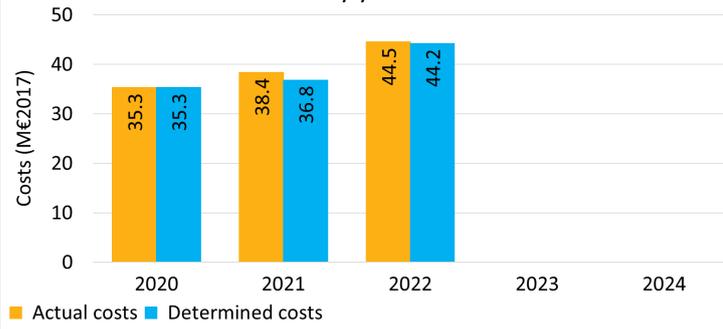


Cost-efficiency



Cost-efficiency

Costs related to investments by year



PANSA 2022 costs related to investments were in line with the determined.

Comments from the Performance Review Body:

Safety:

- NAV Portugal has already exceeded the RP3 EoS targets in 2021 and remained on or above the targets since then. NAV Portugal implemented continuous monitoring process with the development of new tools and indicators to ensure maintaining current safety performance.
- Portugal recorded stable performance with respect to safety occurrences. The rate of separation infringement decreased while the rate of runway incursion remained at a comparable level despite the traffic increase. The NSA was in the process of reviewing the State Safety Plan (SSP) related to monitoring of occurrences and implementation and efficiency of specific measures.
- NAV Portugal could improve its safety management by implementing automated safety data recording systems.

Environment:

- Portugal achieved a KEA performance of 1.52% compared to its target of 1.80% and contributed positively towards achieving the Union-wide target. KEA improved by 0.13 percentage points compared to 2021.
- KEP and SCR slightly improved compared to 2021 levels.
- The share of CDO flights decreased by 2.93% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.83 to 1.54 min/flight, while additional taxi out time increased from 1.64 to 2.69 min/flight.

Capacity:

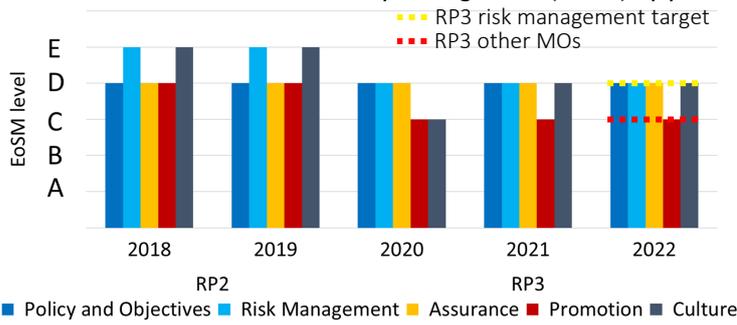
- Portugal registered 0.63 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.67 during the post-ops adjustment process, thus not achieving the local target value of 0.13.
- The average number of IFR movements was 6% below 2019 levels in Portugal in 2022.
- A 25% increase in the number of ATCOs in OPS is expected by the end of RP3. The actual value remained below the 2022 plan in Lisbon ACC.
- The system transition in Lisbon ACC was the key reason behind delays in Portugal in 2022.

Cost-efficiency:

- The en route 2022 actual unit cost of Portugal was 32.34€₂₀₁₇, 21% lower than the determined unit cost (40.78€₂₀₁₇). The terminal 2022 actual unit cost was 123.20€₂₀₁₇, 18% lower than the determined unit cost (150.21€₂₀₁₇).
- The en route 2022 actual service units (3,695K) were 11% higher than the determined service units (3,316K).
- The en route 2022 actual total costs were 16M€₂₀₁₇ (-12%) lower than planned. It was mainly caused by lower staff costs (-9.5 M€₂₀₁₇, or -10%) due to the performance of the defined pension plans, and lower depreciation costs (-3.1M€₂₀₁₇, or -22%) as a result of the postponement of the implementation of the new ATM system as requested by the Network Manager.
- Portugal presented a deviation from the criteria to achieve capacity targets, which was considered justified. Considering that costs are significantly lower and that the 2022 en route capacity targets have not been achieved, the situation raises serious concern. The PRB invites the NSA to analyse the discrepancies and identify their reasons and the Member State to rectify the situation to ensure that the additional means granted through the capacity deviation are actually used to address the capacity issues.
- NAV Portugal spent 16M€₂₀₁₇ in 2022 related to costs of investments, 19% less than determined (19M€₂₀₁₇), driven by the postponement of the new ATM system as explained above.
- The en route actual unit cost incurred by users in 2022 was 38.24€, while the terminal actual unit cost incurred by users was 145.82€.

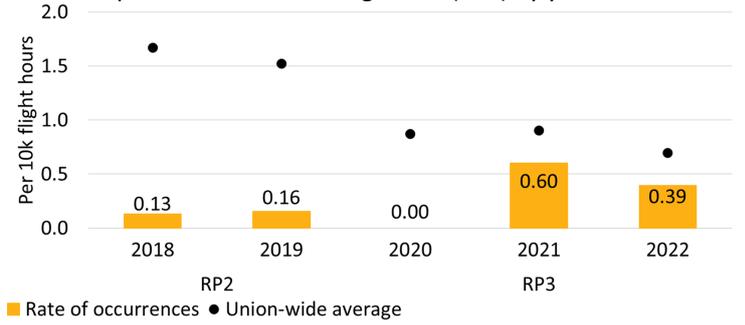
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



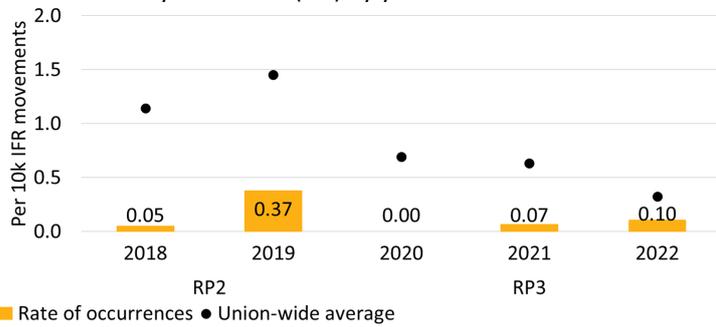
NAV Portugal exceeded the RP3 targets achieving level D in four MOs in 2022.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour decreased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement increased compared to 2021. The rate was below the Union-wide average.

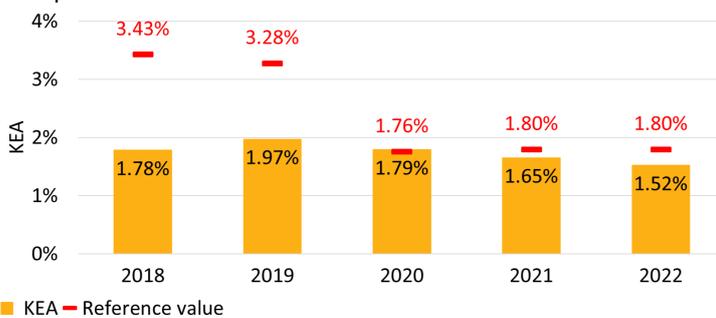
Use of automated safety data recording systems



Portugal does not use automated safety data recording systems for RIs or for SMIs.

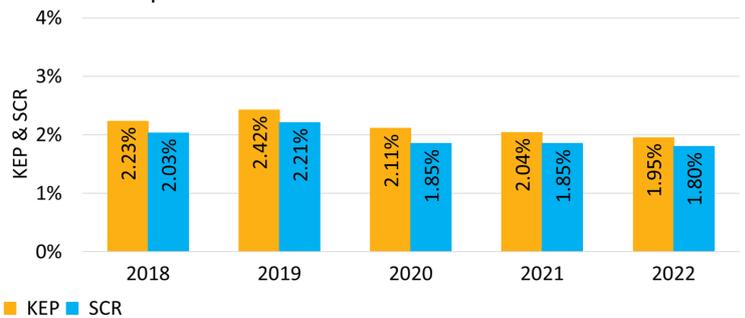
Environment

KEA performance



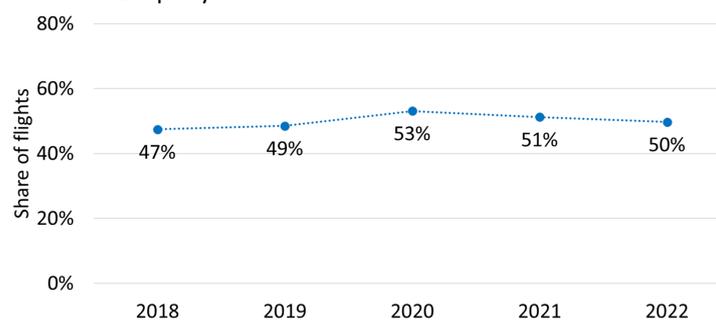
Portugal achieved its 2022 KEA target by 0.28 percentage points, and performance improved relative to 2021.

KEP and SCR performance



Portugal made shorter routes (SCR) available in 2022, leading to airspace users planning shorter routes.

Share of CDO per year



Portugal's CDO performance worsened in 2022 compared to 2021 by 2.9%.

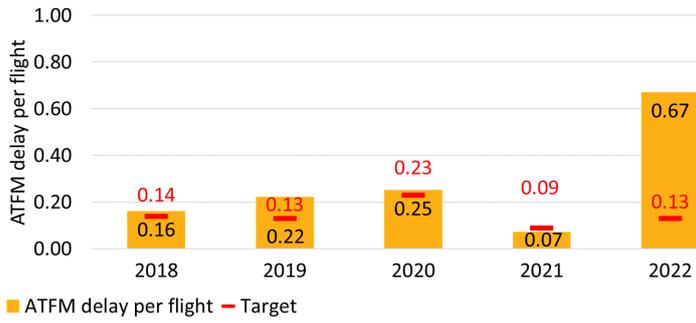
Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 3.66 minutes per flight either taxiing or holding at Portuguese airports.

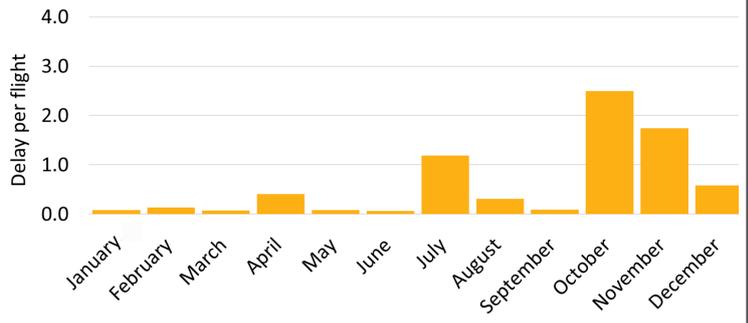
Capacity

ATFM delay per flight (min/flight)



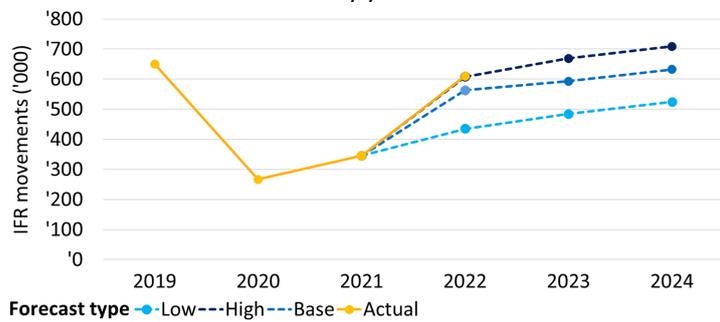
Delays in Portugal increased by 0.6 minutes/flight year-on-year. Performance in Portugal was worse than the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



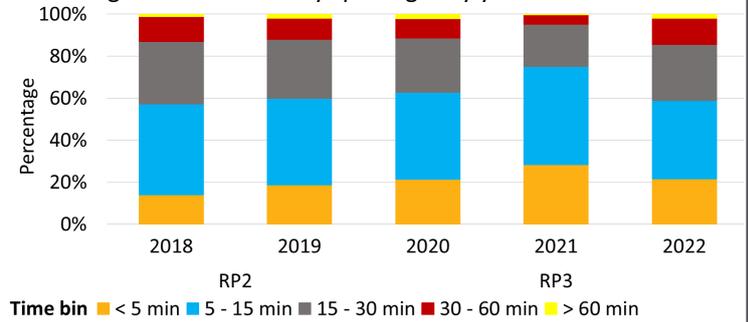
Delays were highest during July, October, and November, mostly driven by the system transition.

IFR movements and forecasts by year



IFR movements in Portugal were less than 1% above the high scenario of the 2021 October forecast in 2022.

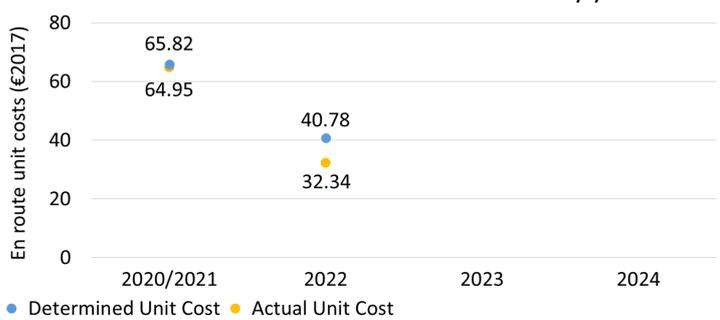
Percentage of en route delays per flight by year and time bin



The share of delayed flights with delays longer than 15 minutes increased by 16 percentage points compared to 2021.

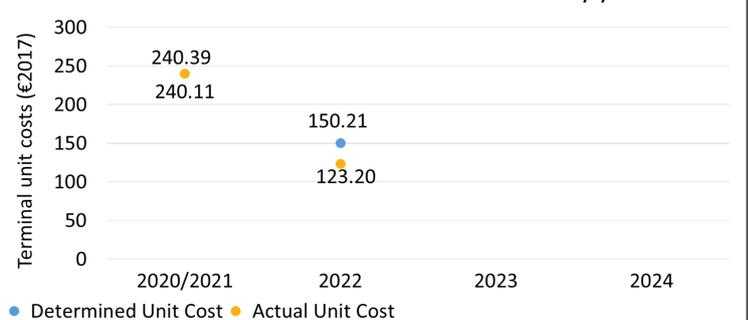
Cost-efficiency

En route actual unit cost and determined unit cost by year



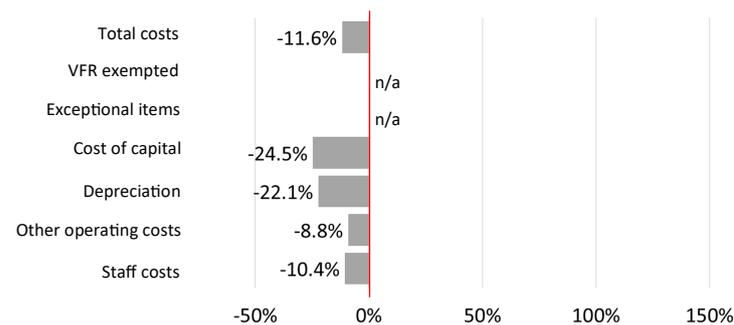
The 2022 en route actual unit cost was lower than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



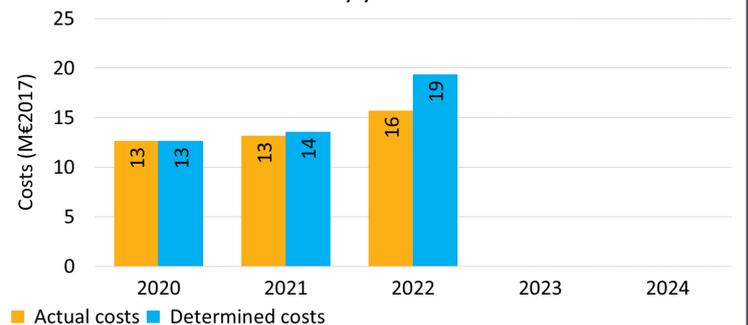
The 2022 terminal actual unit cost was lower than the determined unit cost.

% difference between 2022 actual costs and determined



Portugal decreased costs in all cost categories compared to determined cost.

Costs related to investments by year



NAV Portugal investment costs were 19% lower than determined due to the delay in the implementation of the new ATM system.

Comments from the Performance Review Body:

Safety:

- ROMATSA has already exceeded the RP3 EoS targets in 2020 and remained on or above the targets since then. ROMATSA, together with the NSA, developed a safety strategy including various measures to monitor the implementation and efficiency of safety action to ensure high safety performance.
- Romania recorded stable performance with respect to safety occurrences, with no runway incursions and a marginal increase in the rate of separation minima infringements relative to 2021. The NSA regularly monitors the safety occurrences and perform specialized analysis on daily, quarterly, and yearly basis.
- ROMATSA could improve its safety management by implementing automated safety data recording systems.

Environment:

- Romania achieved a KEA performance of 3.36% compared to its target of 2.05% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 1.14 percentage points compared to 2021.
- The NSA states that despite the significant traffic reduction, previous geopolitical situations continue (Black Sea, Eastern Ukraine, and Crimea) and are further exacerbated by Russia's war of aggression against Ukraine, and related RAD restrictions in 2022.
- KEP and SCR worsened by 0.97 and 1.66 percentage points respectively.
- The share of CDO flights decreased by 9.38% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.57 to 0.58 min/flight, while additional taxi out time increased from 1.66 to 2.08 min/flight.

Capacity:

- Romania registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.04.
- The average number of IFR movements was 12% below 2019 levels in Romania in 2022.
- A 12% increase in the number of ATCOs in OPS is expected by the end of RP3 with the actual value being in line with the 2022 plan in Bucharest ACC.

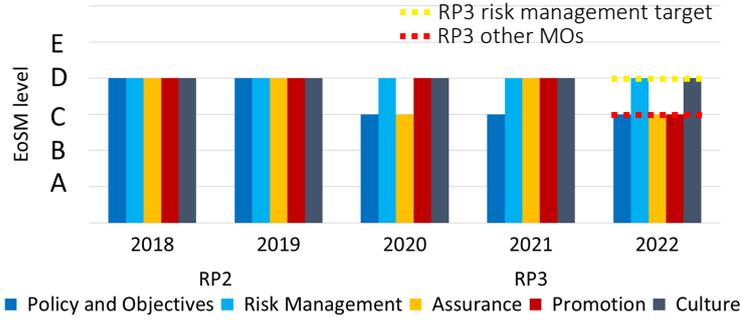
Cost-efficiency:

- The en route 2022 actual unit cost of Romania was 38.10€₂₀₁₇, 3.1% lower than the determined unit cost (39.32€₂₀₁₇).⁵ The terminal 2022 actual unit cost was 287.04€₂₀₁₇, 11% higher than the determined unit cost (257.81€₂₀₁₇).
- The en route 2022 actual service units (4,770K) were 4.1% higher than the determined service units (4,583K).
- The en route 2022 actual total costs were 1.6M€₂₀₁₇(+0.9%) higher than determined. The increase in staff costs (+5.1M€₂₀₁₇, or +3.8%) compared to determined is only partially offset by decreases in other operating costs and cost of capital. Staff costs increased mainly due to an increase in pension cost and inflation compensation.
- ROMATSA spent 17.9M€₂₀₁₇ in 2022 related to costs of investments, 1.7% less than planned (18.2M€₂₀₁₇), due to delays of nine investments as result of delays in procurement procedures.
- The en route actual unit cost incurred by users in 2022 was 45.42€, while the terminal actual unit cost incurred by users was 316.41€.

⁵ The relevant figures for actual costs 2022 will be updated in the Monitoring Report 2023 following the correction from Romania.

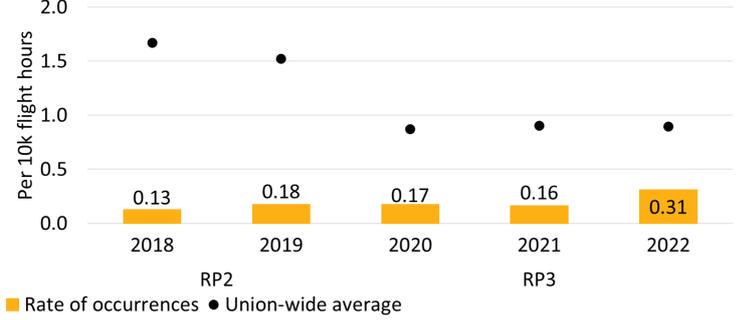
Safety

Main ANSP's effectiveness of safety management (EoSM) by year



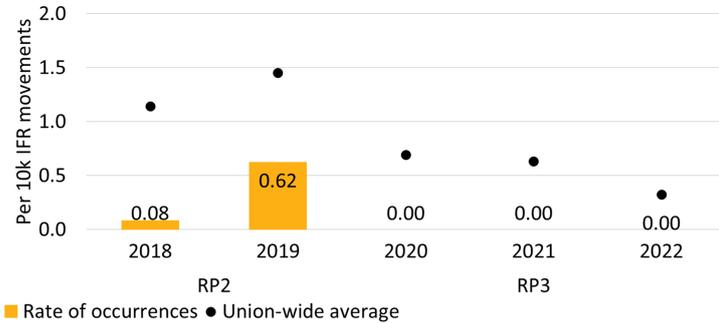
ROMATSA has already achieved the RP3 EoSM targets in 2020 and has remained at this level.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour increased marginally in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



Romania did not record any RIs occurrences in 2022.

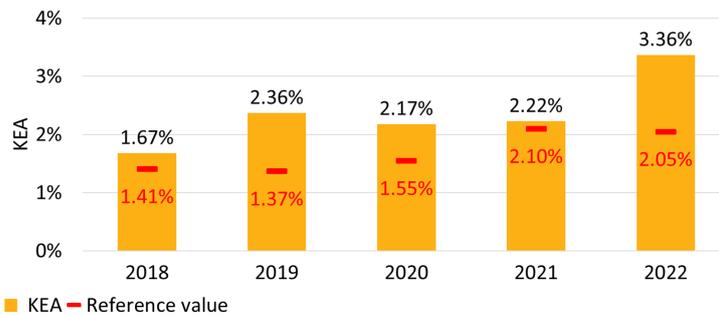
Use of automated safety data recording systems



Romania does not use automated safety data recording systems for RIs or for SMIs.

Environment

KEA performance



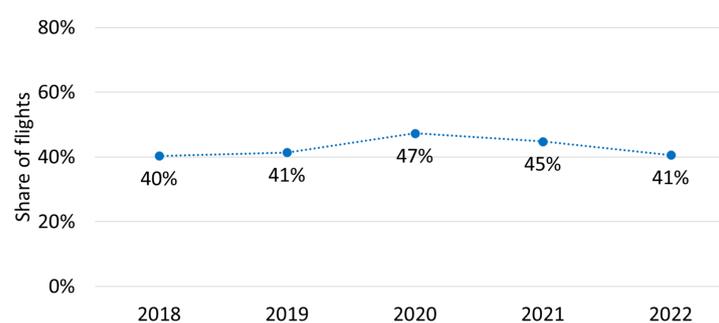
Romania did not achieve its 2022 KEA target by 1.31 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



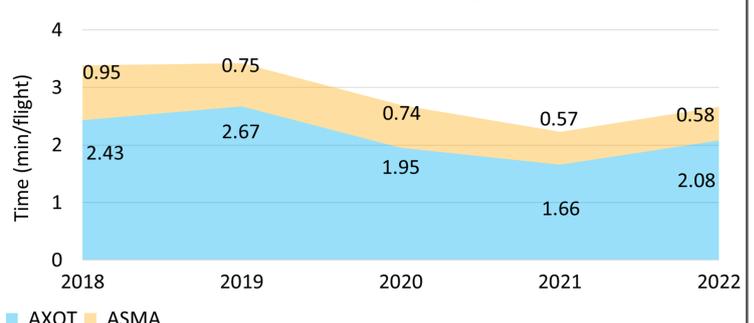
Romania did not make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

Share of CDO per year



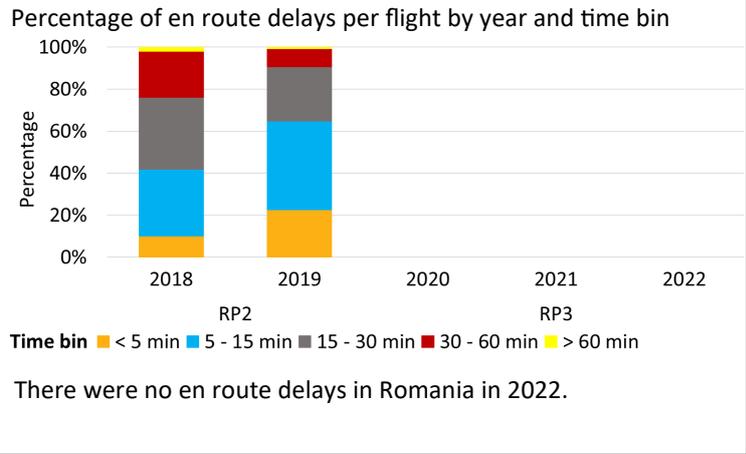
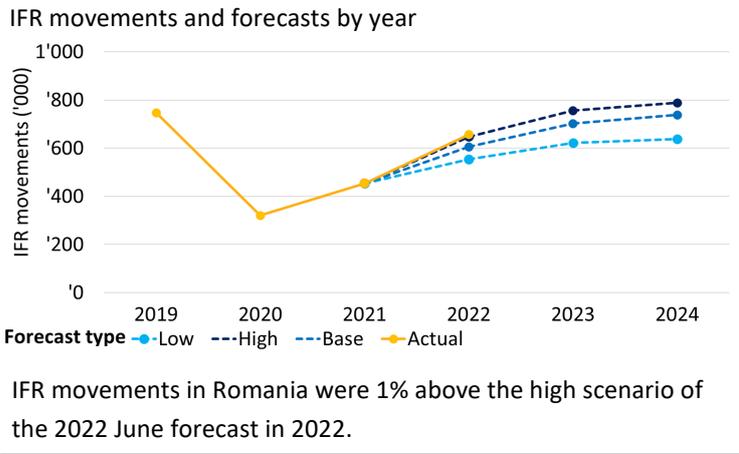
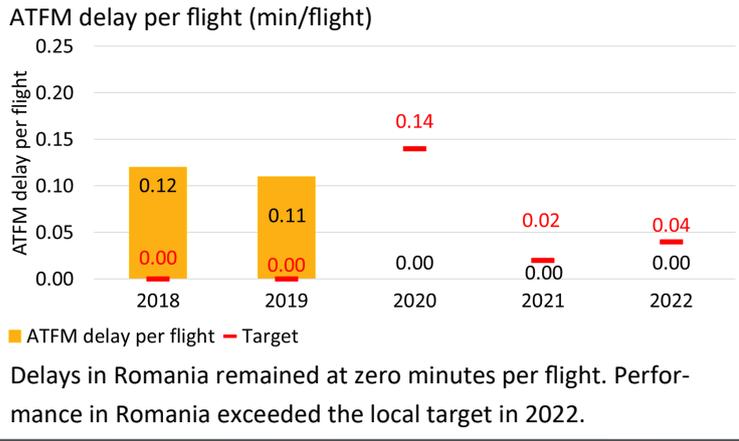
Romania's CDO performance worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year

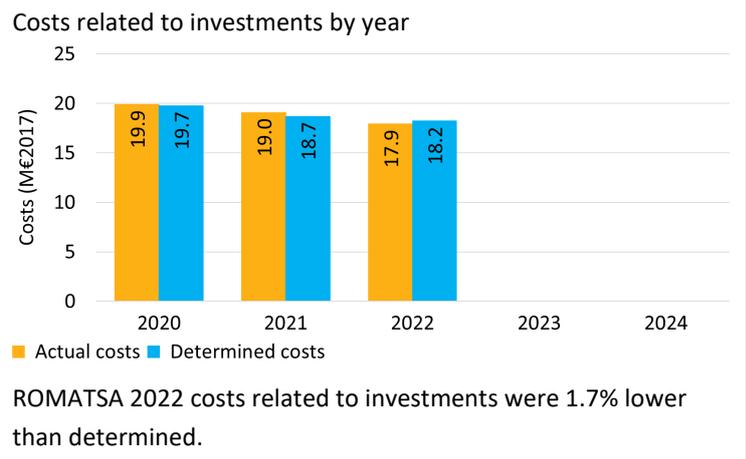
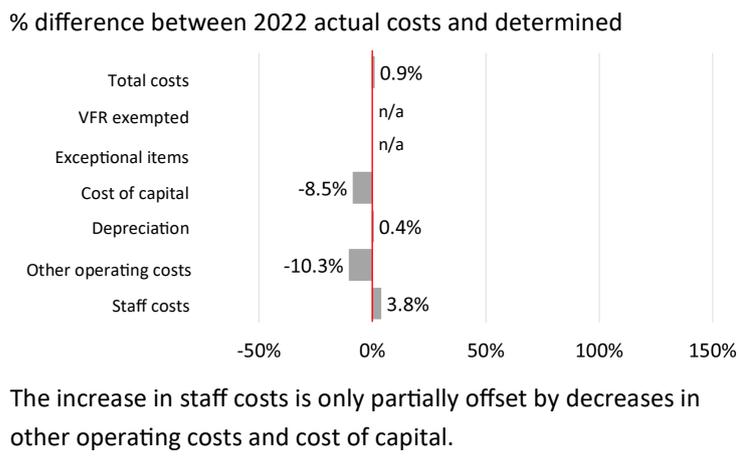
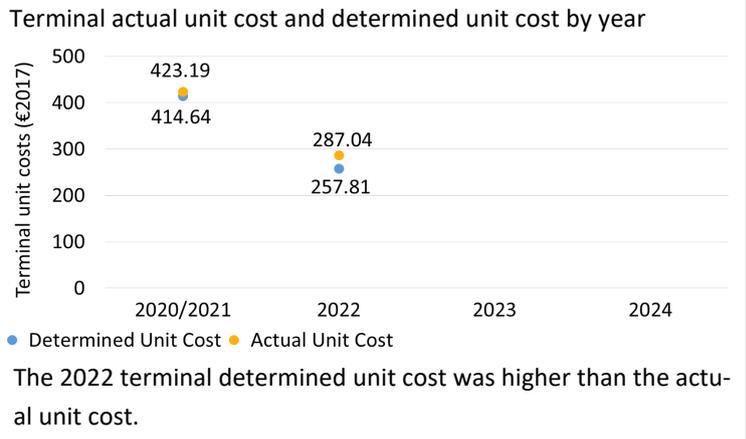
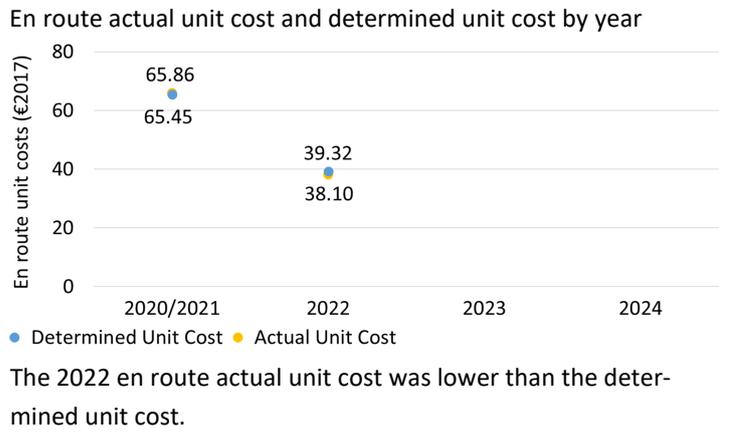


Terminal airspace users spent an additional 2.66 minutes per flight either taxiing or holding at Bucharest airport.

Capacity



Cost-efficiency



Comments from the Performance Review Body:

Safety:

- In 2022, LPS SR failed to maintain the planned level for safety assurance and degraded its performance to level B due to a reorganisation of safety functions. LPS SR should ensure that adequate resources are in place to implement improvements to allow the attainment of the target again. LPS SR has achieved the RP3 target levels for the other four management objectives in advance of their plan.
- Slovakia recorded stable performance with respect to safety occurrences, with no occurrences recorded for runway incursions or for separation minima infringements. The NSA closely monitored the separation minima infringements throughout the year and established acceptable and tolerable levels of safety.
- LPS SR could improve its safety management by implementing automated safety data recording systems for runway incursions.

Environment:

- Slovakia achieved a KEA performance of 4.04% compared to its target of 2.13% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 1.75 percentage points compared to 2021.
- The NSA states that despite the plan to implement H24 cross-border FRA, LPS SR will have limited scope for additional improvement in KEA. Additionally, the most impact on KEA is derived from the significant shift in trajectories due to Russia's war of aggression against Ukraine.
- Both KEP and SCR worsened in 2022 and were at their highest values in the past five years.
- Slovakia has no airports that are regulated under the RP3 performance and charging scheme.

Capacity:

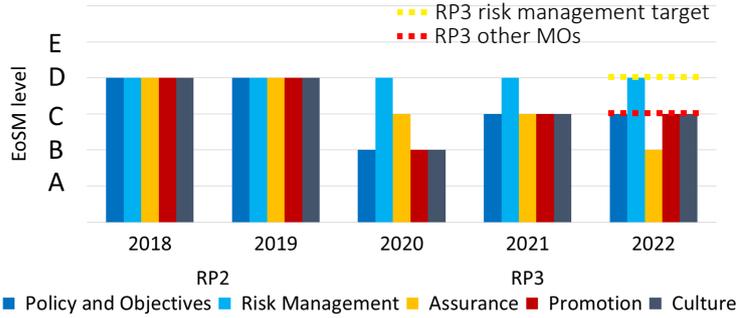
- Slovakia registered 0.03 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to zero, thus achieving the local target value of 0.07.
- The average number of IFR movements was 16% below 2019 levels in Slovakia in 2022.
- The number of ATCOs in OPS is expected to increase by 9% by the end of RP3 in Bratislava ACC with the actual value being above the 2022 plan.

Cost-efficiency:

- The en route 2022 actual unit cost of Slovakia was 50.66€₂₀₁₇, 26% lower than the determined unit cost (68.51€₂₀₁₇). Slovakia does not have a terminal charging zone.
- The en route 2022 actual service units (973K) were 22% higher than the determined service units (798K).
- The en route 2022 actual total costs were 5.4M€₂₀₁₇ (-10%) lower than planned. The significant increases in depreciation and cost of capital partially offset the decrease in total costs. The decrease was mainly attributable to lower staff costs (-5.3M€₂₀₁₇, or -15%) due to the non-payment of the variable salaries, a COVID-19 measure already taken in 2020 (for cashflow reasons).
- Slovakia presented a deviation from the criteria to achieve capacity targets, which was considered justified. Considering that costs are significantly lower and that the 2022 en route capacity targets have not been achieved, the PRB invites the NSA to analyse the discrepancies and identify their reasons, and the Member State to rectify the situation to ensure that the additional means granted through the capacity deviation are actually used to address the capacity issues.
- LPS SR spent 8.1M€₂₀₁₇ in 2022 related to costs of investments, 27% more than determined (6.3M€₂₀₁₇). The NSA explains that the increase is due to the fact that determined costs of investments have been lowered in the plan by the amount underspent in RP2.
- The en route actual unit cost incurred by users in 2022 was 68.58€.

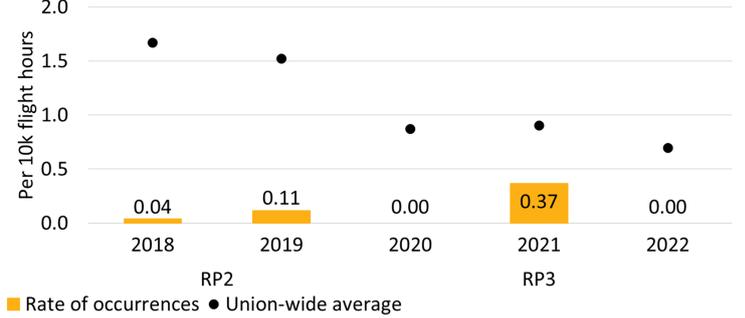
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



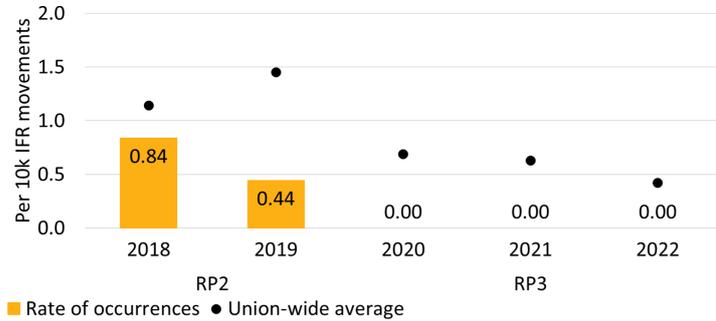
LPS SR achieved the RP3 target levels for four MOs in 2022 but requires improvement safety assurance.

Rate of separation minima infringement (SMI) by year



Slovakia did not record any SMI occurrences in 2022.

Rate of runway incursions (RIs) by year



Slovakia did not record any RI occurrences in 2022.

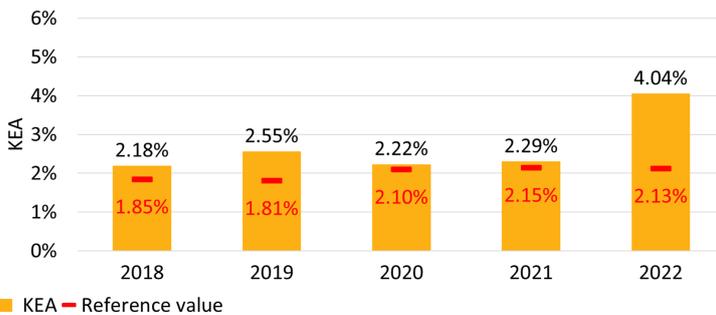
Use of automated safety data recording systems



Slovakia uses automated safety data recording systems for recording of SMIs.

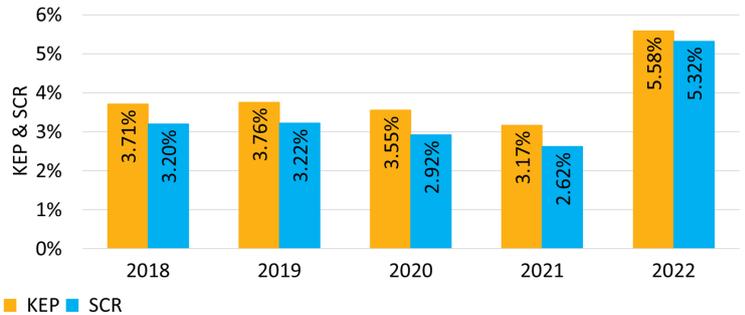
Environment

KEA performance



Slovakia did not achieve its 2022 KEA target by 1.91 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



Slovakia did not make shorter constrained routes available to air-space users in 2022, who were not able to plan shorter routes.

No Slovakian airport is regulated under the performance and charging scheme.

No Slovakian airport is regulated under the performance and charging scheme.

Slovakia did not declare any of its airports as subject to the performance and charging Regulation.

Slovakia did not declare any of its airports as subject to the performance and charging Regulation.

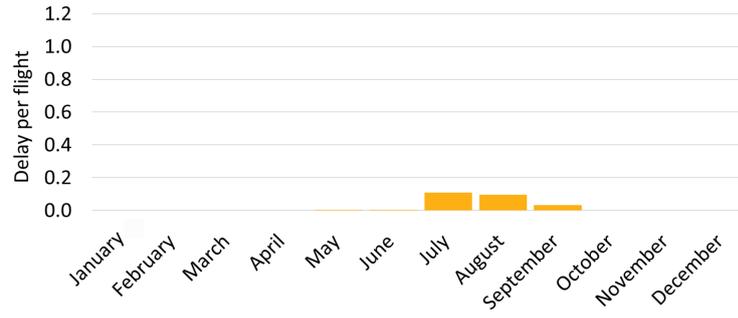
Capacity

ATFM delay per flight (min/flight)



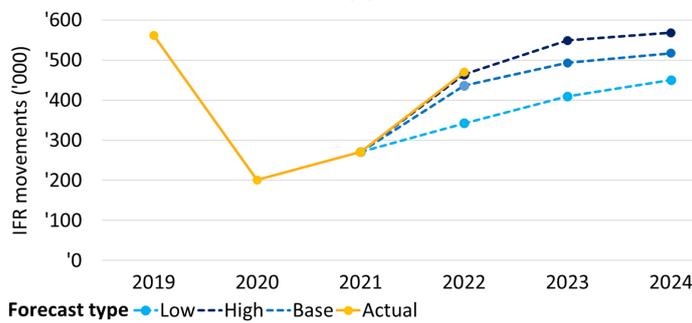
Delays in Slovakia remained at zero after minutes per flight. Performance in Slovakia exceeded the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



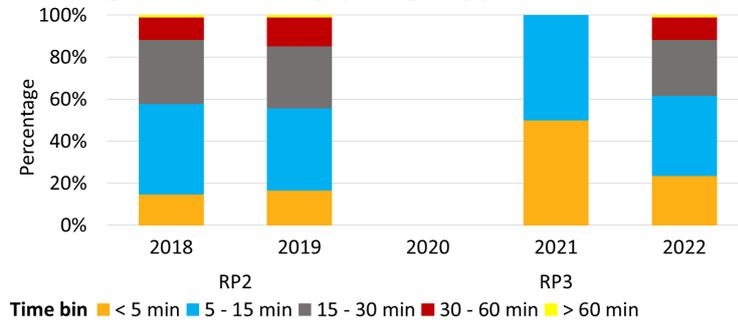
The limited amount of delays occurred mostly during July and August due to minor ATC capacity issues and adverse weather.

IFR movements and forecasts by year



IFR movements in Slovakia were 1% above the high scenario of the 2021 October forecast in 2022.

Percentage of en route delays per flight by year and time bin



The share of flights with delays longer than 15 minutes increased by 38 percentage points but remained below pre-COVID levels.

Cost-efficiency

En route actual unit cost and determined unit cost by year

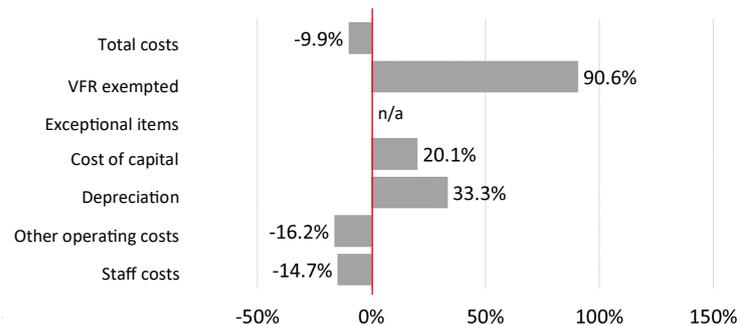


The 2022 en route actual unit cost was lower than the determined unit cost.

Slovakia does not have a terminal charging zone.

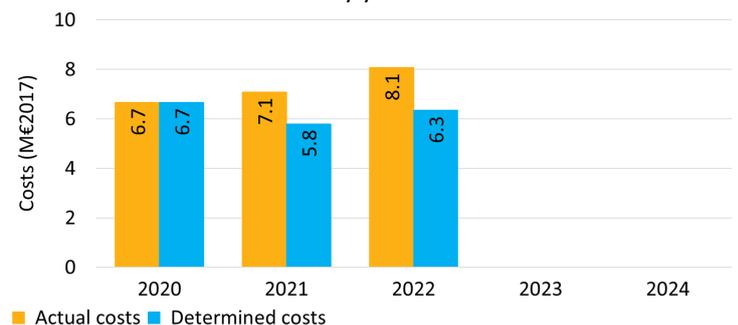
Slovakia did not declare any terminal charging zones as subject to the performance and charging Regulation.

% difference between 2022 actual costs and determined



Despite significant increases in depreciation and cost of capital, Slovakia decreased total costs by 9.9%.

Costs related to investments by year



LPS SR 2022 costs related to investments were 27% higher than determined.

Comments from the Performance Review Body:

Safety:

- Slovenia Control has already achieved the RP3 EoSM targets in four out of five management objectives in 2020 but needs to make improvements in the safety risk management objective in line with its planned maturity levels targets.
- Slovenia Control, together with the NSA, implemented multiple review processes and continuous monitoring to ensure the maintenance of high safety performance.
- Slovenia recorded an increase of separation minima infringements and runway incursions relative to 2021. Slovenia established a State Plan for Aviation Safety (SPAS 2022-2026) including both leading and lagging indicators, monitoring of precursors events which may lead to occurrences and gap analysis against European Action Plan for Prevention of Runway Incursions.
- Slovenia Control could improve its safety management by implementing automated safety data recording systems.

Environment:

- Slovenia achieved a KEA performance of 1.72% compared to its target of 1.55% and did not contribute positively towards the Union-wide target. KEA worsened by 0.24 percentage points compared to 2021.
- SCR and KEP worsened compared to 2021.
- The NSA states that the availability of the shortest flight planning option is already closer to optimum, with no delays caused by Ljubljana ACC.
- Slovenia has no airports that are regulated under the RP3 performance and charging scheme.

Capacity:

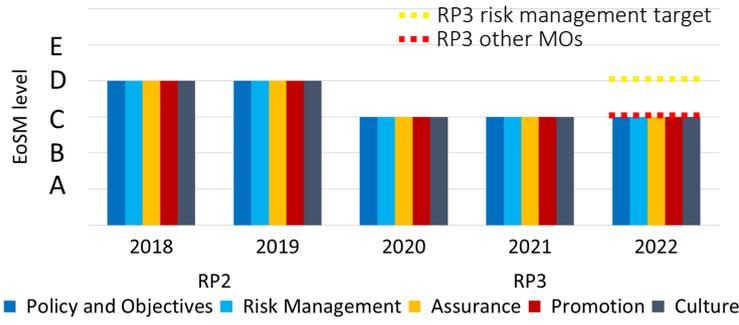
- Slovenia registered zero minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.09.
- The average number of IFR movements was 2% below 2019 levels in Slovenia in 2022.
- Traffic is expected to grow moderately in the remaining years of RP3. A 7% increase in the number of ATCOs in OPS is expected by the end of RP3 in Ljubljana ACC, with the actual value being above the 2022 plan.

Cost-efficiency:

- The en route 2022 actual unit cost of Slovenia was 52.63€₂₀₁₇, 15% lower than the determined unit cost (62.11€₂₀₁₇). Slovenia does not have a terminal charging zone.
- The en route 2022 actual service units (595K) were 11% higher than the determined service units (536K).
- The en route 2022 actual total costs were 1.9M€₂₀₁₇ (-5.9%) lower than determined. However, actual costs in nominal terms were slightly higher than determined, while actual costs in real terms were lower than determined as a result of a significant higher-than-expected inflation.
- Slovenia Control spent 4.5M€₂₀₁₇ in 2022 related to costs of investments, 1.9% less than determined (4.6M€₂₀₁₇), due to a lower net book value of fixed assets than planned.
- The en route actual unit cost incurred by users in 2022 was 64.31€.

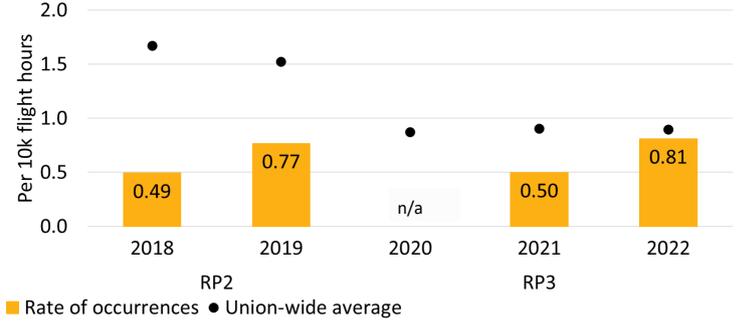
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



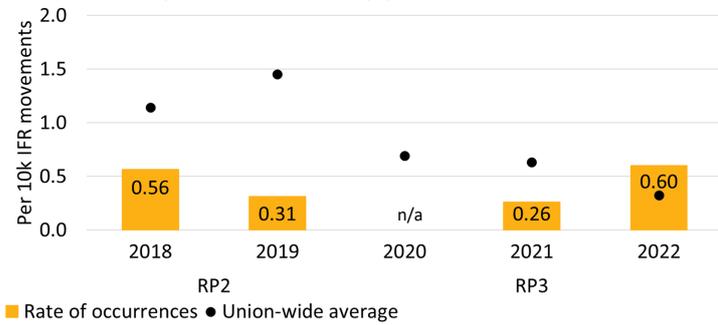
Slovenia Control did not achieve the target for safety risk management but achieved the targets for all other MOs already in 2020.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour increased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement increased in 2022 relative to 2021. The rate was above the Union-wide average.

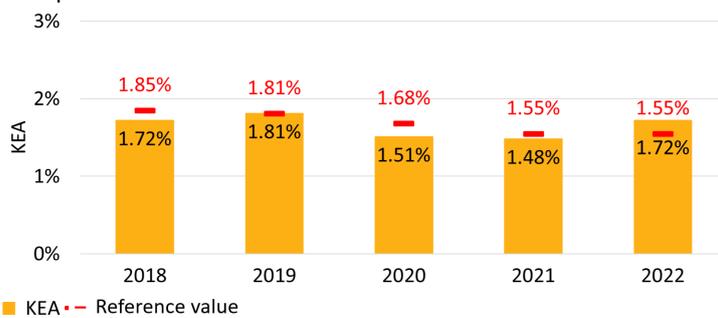
Use of automated safety data recording systems



Slovenia does not use automated safety data recording systems for RIs or for SMIs.

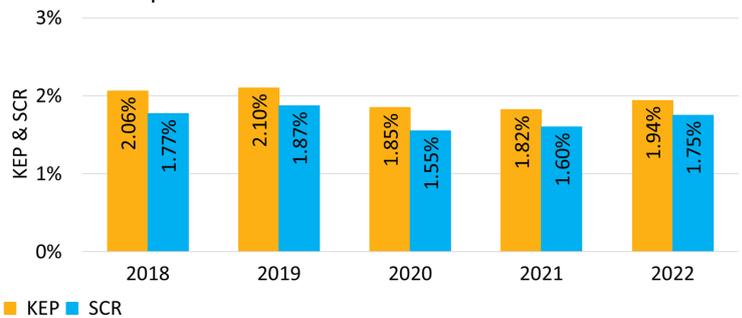
Environment

KEA performance



Slovenia has not achieved its 2022 KEA target by 0.17 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



Slovenia did not make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

No Slovenian airport is regulated under the performance and charging scheme.

No Slovenian airport is regulated under the performance and charging scheme.

Slovenia did not declare any of its airports as subject to the performance and charging Regulation.

Slovenia did not declare any of its airports as subject to the performance and charging Regulation.

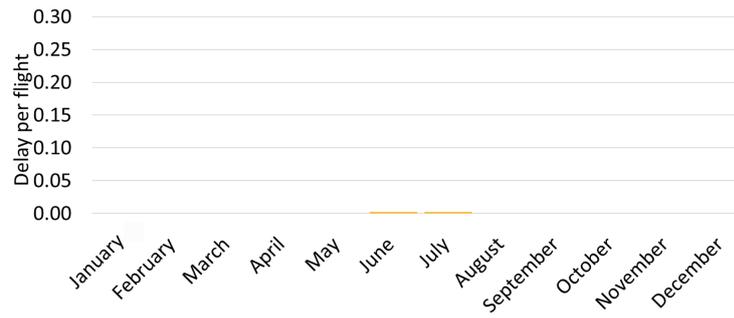
Capacity

ATFM delay per flight (min/flight)



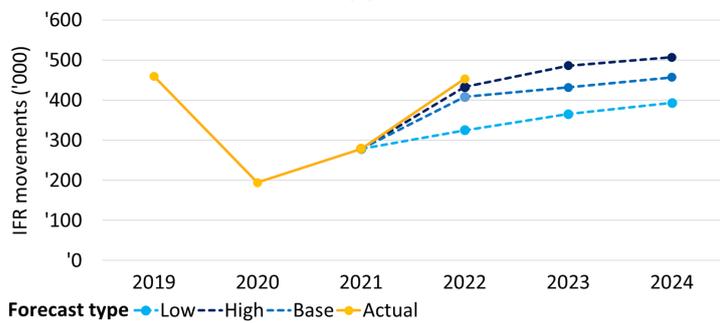
Delays in Slovenia remained at zero minutes per flight. Performance in Slovenia exceeded the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



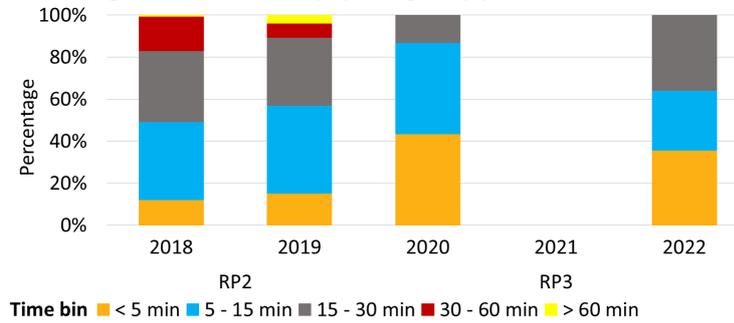
There were negligible delays in Slovenia in 2022.

IFR movements and forecasts by year



IFR movements in Slovenia were 5% above the base scenario of the 2021 October forecast in 2022.

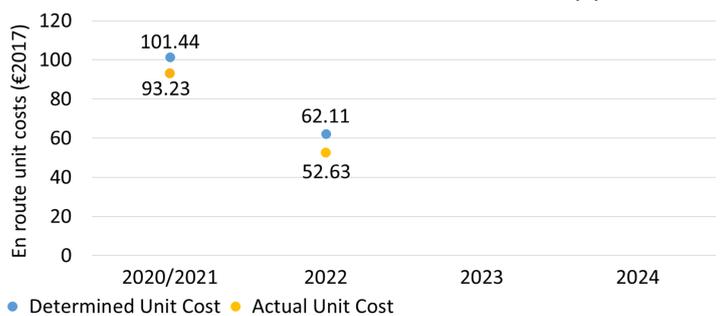
Percentage of en route delays per flight by year and time bin



Low levels of delays should be considered when reviewing the graph.

Cost-efficiency

En route actual unit cost and determined unit cost by year

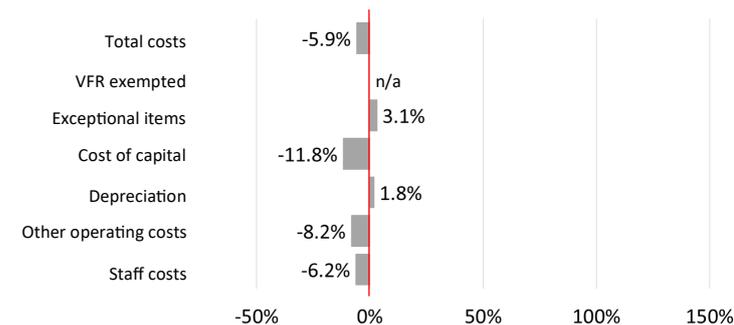


The 2022 en route actual unit cost was lower than the determined unit cost.

Slovenia does not have a terminal charging zone.

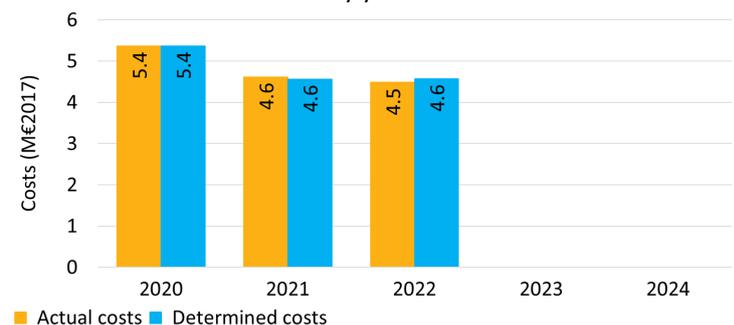
Slovenia did not declare any terminal charging zones as subject to the performance and charging Regulation.

% difference between 2022 actual costs and determined



2022 total costs were lower than determined as a result of a significant higher-than-expected inflation.

Costs related to investments by year



Slovenia Control 2022 costs related to investments were 1.9% lower than determined.

Comments from the Performance Review Body:

Safety:

- ENAIRE has already exceeded the RP3 EoS targets in 2021 and remained on or above the targets since then. ENAIRE implemented continuous monitoring process to ensure maintaining high safety performance.
- SKYWAY achieved the RP3 EoS target in four out of five management objectives with only safety risk management requiring further improvement. This is in line with their performance plan.
- SKYWAY continuously improves this area giving confidence that all RP3 EoS targets will be achieved by the end of RP3.
- Spain recorded stable performance with respect to safety occurrences, with higher rate of separation minima infringements and marginally lower rate of runway incursions relative to 2021.
- Spain uses specific automated safety data recording systems for ACC and TMA sectors, and is one of the few ANSPs doing so.

Environment:

- Spain achieved a KEA performance of 3.32% compared to its target of 3.08% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 0.02 percentage points compared to 2021.
- The NSA states that the increase in KEA is due to traffic recovery and to transition plans for the new ATM system which requires mitigation measures in Reims, Lisbon, Marseille, and possibly Casablanca, leading to re-routings.
- Both KEP and SCR decreased in 2022 in comparison to 2021 and were at their lowest values in the past five years.
- The share of CDO flights decreased by 1.12% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.88 to 1.14 min/flight, while additional taxi out time increased from 2.01 to 2.64 min/flight.

Capacity:

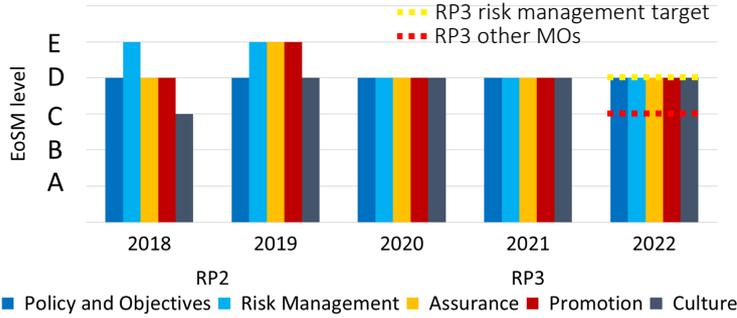
- Spain registered 0.34 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.30 during the post-ops adjustment process, thus not achieving the local target value of 0.20.
- The average number of IFR movements was 8% below 2019 levels in Spain in 2022.
- The number of ATCOs in OPS is planned to remain the same in Canarias ACC, while a decrease in the numbers is planned in all the other ACCs by the end of RP3. The actual values followed the 2022 plan in Barcelona and Sevilla ACCs, while in Canarias, Madrid, and Palma ACCs they were higher than the 2022 plan.
- Given that ATC capacity appears to be a continuing issue at Spanish ACCs, the planned number of ATCOs in OPS may need to be revised upwards.

Cost-efficiency:

- The en route 2022 actual unit cost of Spain Continental was 58.30€₂₀₁₇, 8.7% higher than the determined unit cost (53.64€₂₀₁₇). The en route 2022 actual unit cost of Spain Canarias was 56.93€₂₀₁₇, 15% lower than the determined unit cost (66.92€₂₀₁₇).
- The terminal 2022 actual unit cost of Spain was 126.16€₂₀₁₇, 6.6% higher than the determined unit cost (118.36€₂₀₁₇).
- The en route 2022 actual service units of Spain Continental (11,079K) were 1.0% lower than the determined service units (11,190K). The en route 2022 actual service units of Spain Canarias (1,790K) were 27% higher than the determined (1,415K).
- In 2022, Spain Continental increased en route total cost by 46M€₂₀₁₇ (+7.6%) compared to the determined. All cost categories increased, except cost of capital. The increase in staff cost in ENAIRE (+45M€₂₀₁₇, or +10.5%) was the main driver of the increase, the NSA noted that it is due to unforeseen increases in salaries derived from new national law requirements.
- In 2022, Spain Canarias increased en route total cost by 7.2M€₂₀₁₇ (+7.6%) compared to determined. Similar to Spain Continental, all cost categories increased except for cost of capital. The reasons are the same as for Spain Continental.
- These significant differences in staff costs amount to 97M€ in nominal terms, which Spain intends to charge to airspace users through the cost sharing mechanism. The PRB invites the NSA to investigate the eligibility of such costs and to ensure proper consultation with airspace users on this topic.
- ENAIRE spent 115M€₂₀₁₇ in 2022 related to costs of investments, 4.1% less than determined (120M€₂₀₁₇) mainly due to some delays to take account of new technological evolution and regulation requirements in the investments.
- The en route Spain Continental actual unit cost incurred by users in 2022 was 70.16€, while the en route Spain Canarias actual unit cost incurred by users was 48.44€. The terminal actual unit cost incurred by users was 27.02€.

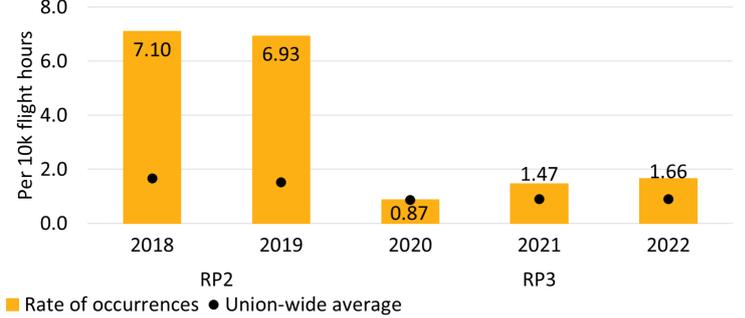
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



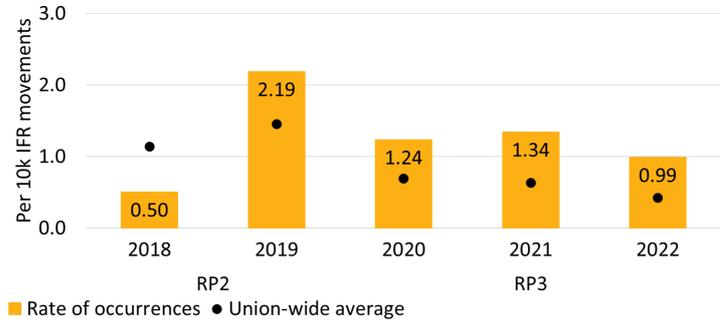
ENAIRE exceeded the RP3 targets achieving level D in all five MOs already in 2020.

Rate of separation minima infringement (SMI) by year



The rate of SMIs per flight hour increased in 2022 relative to 2021. The rate was above the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was above the Union-wide average.

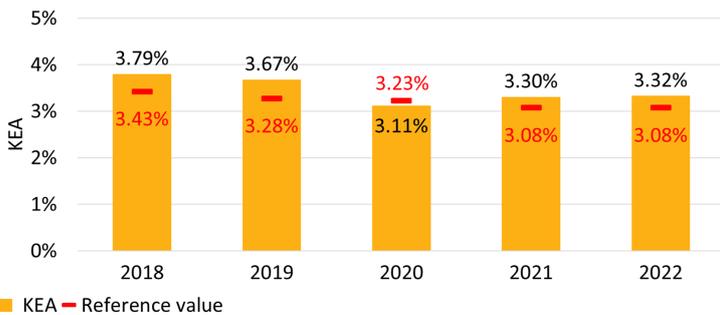
Use of automated safety data recording systems



Spain uses the automated safety data recording systems for both RIs and SMIs.

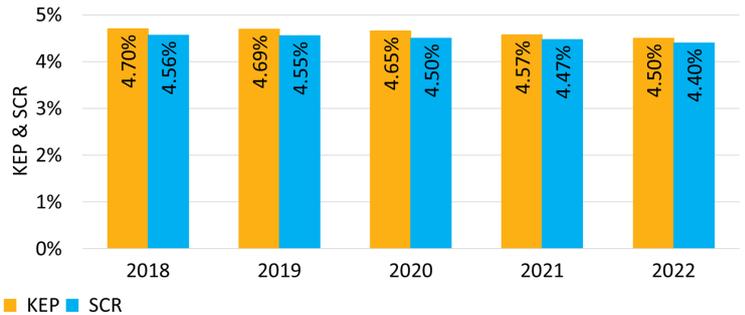
Environment

KEA performance



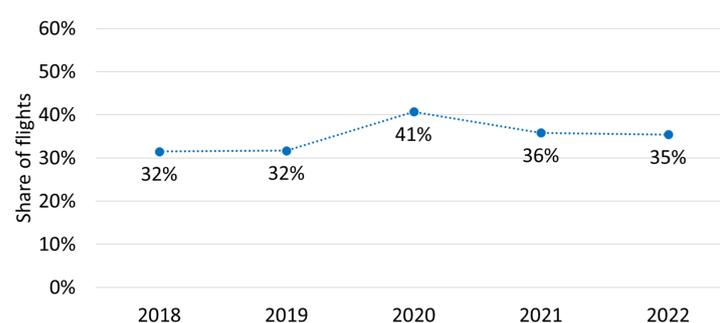
Spain did not achieve its 2022 KEA target by 0.24 percentage points, and performance slightly worsened relative to 2021.

KEP and SCR performance



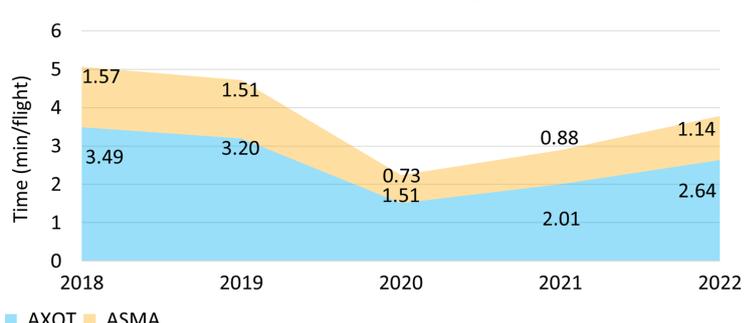
Spain made shorter constrained routes available to airspace users in 2022, who were then able to plan shorter routes.

Share of CDO per year



Spain's CDO performance worsened in 2022 compared to 2021.

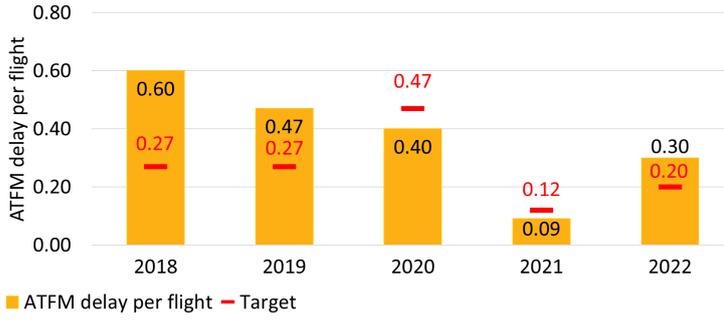
Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 3.27 minutes per flight either taxiing or holding at Spanish airports.

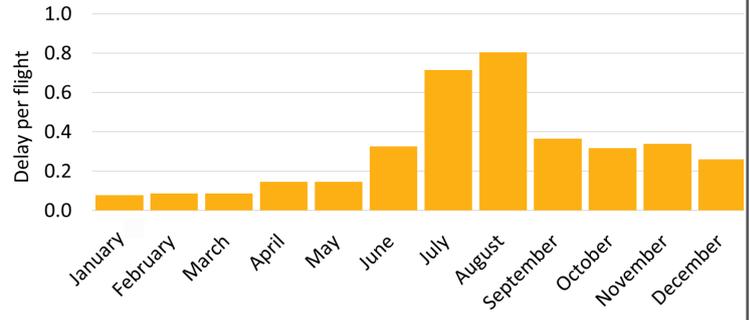
Capacity

ATFM delay per flight (min/flight)



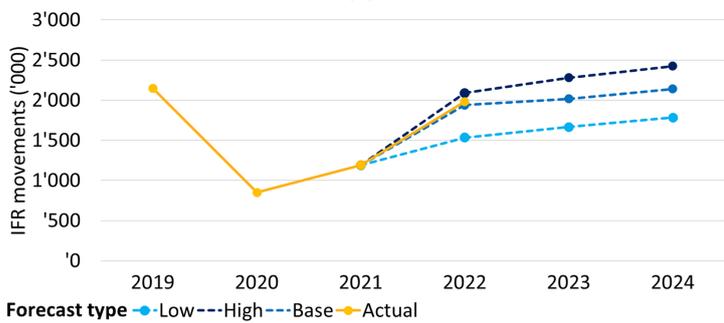
Delays in Spain increased by 0.21 minutes per flight year-on-year. Performance in Spain was worse than the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



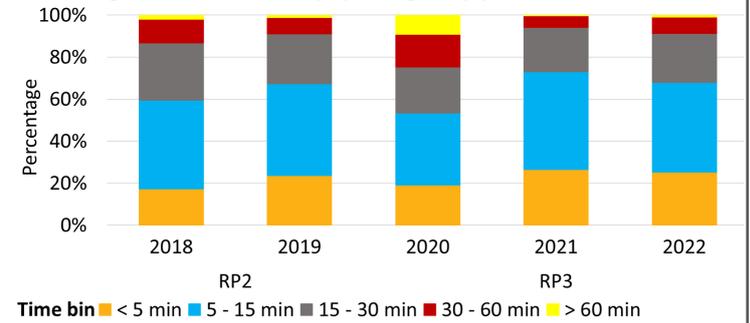
Delays were highest during July and August due to ATC capacity issues and adverse weather.

IFR movements and forecasts by year



IFR movements in Spain were 2% above the base scenario of the 2021 October forecast in 2022.

Percentage of en route delays per flight by year and time bin



The share of delayed flights with delays longer than 15 minutes increased by 5 percentage points compared to 2021.

Cost-efficiency

En route actual unit cost and determined unit cost by year



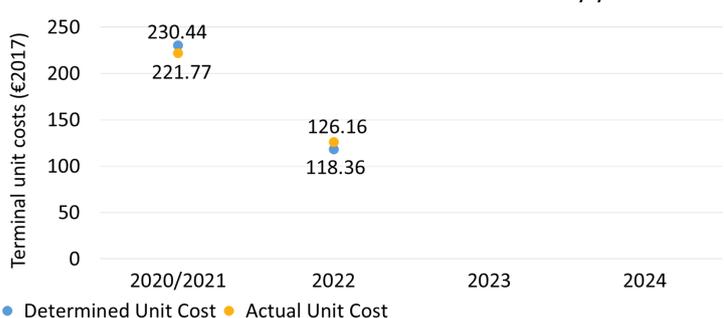
The 2022 Spain Continental en route actual unit cost was higher than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



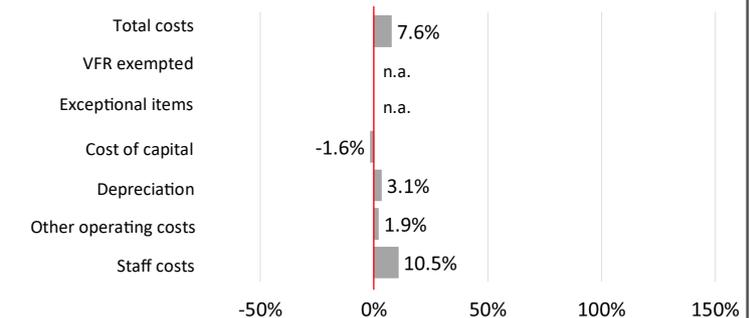
The 2022 Spain Canarias en route actual unit cost was lower than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



The 2022 terminal actual unit cost was higher than the determined unit cost.

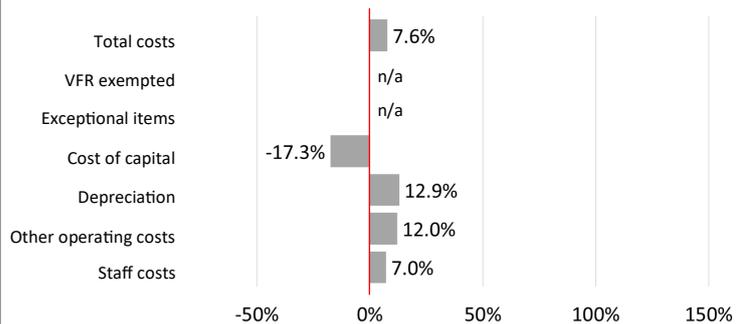
% difference between 2022 actual costs and determined



Spain Continental increased total cost by 7.6% compared to determined, mainly driven by increased staff cost.

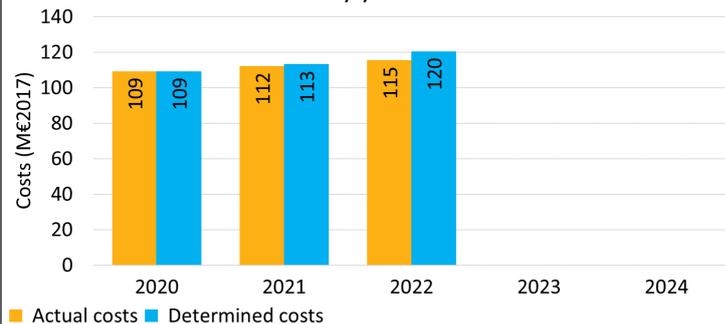
Cost-efficiency

% difference between 2022 actual costs and determined



Spain Canarias increased total cost by 7.6% compared to determined, mainly driven by increased staff costs.

Costs related to investments by year



ENAIRE 2022 costs related to investments were 4.1% lower than determined.

Comments from the Performance Review Body:

Safety:

- LFV achieved the RP3 EoS targets already in 2021 and has achieved the target since then.
- Although improvements were implemented, none of the other ANSPs achieved the RP3 targets. SDATS and ARV – Arvidsjaur are required to improve in only one area, while ACR is required to improve in two areas. The ANSPs have put in place actions necessary to achieve the targets by the end of RP3.
- Sweden recorded stable performance with respect to safety occurrences, with similar rates of separation minima infringements and runway incursions relative to 2021. The rate for runway incursions remains above the Union-wide average. The NSA declared that they were unable to separately identify the occurrences with safety impact only.
- LFV could improve its safety management by implementing automated safety data recording systems.

Environment:

- Sweden achieved a KEA performance of 1.70% compared to its target of 1.05% and did not contribute positively towards achieving the Union-wide target. KEA worsened by 0.66 percentage points compared to 2021.
- The NSA states that KEA worsened due to the traffic avoiding Russian airspace (including Kaliningrad), which is causing extended trajectories.
- Both SCR and KEP worsened compared to 2021 and were at the highest values in the past five years.
- The share of CDO flights increased by 9.52% compared to 2021.
- During 2022, additional time in terminal airspace increased from 0.43 to 0.60 min/flight, while additional taxi out time increased from 0.94 to 1.52 min/flight.

Capacity:

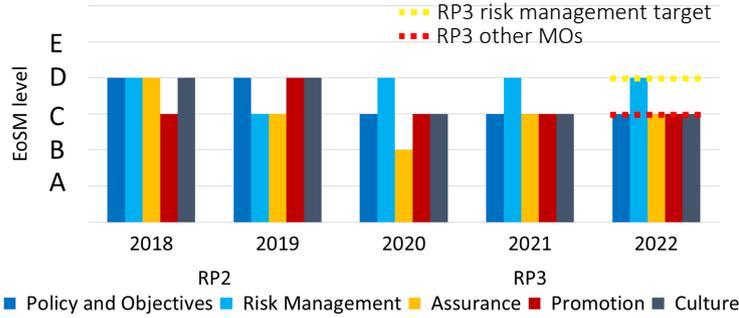
- Sweden registered 0.04 minutes of average en route ATFM delay per flight during 2022, thus achieving the local target value of 0.07.
- The average number of IFR movements was still 29% below 2019 levels in Sweden in 2022.
- An increase in the number of ATCOs in OPS is expected in both ACCs by the end of RP3. The actual 2022 values remain lower than the 2022 plan in both ACCs, due to fewer-than-planned ATCO students passing their on-the-job training.

Cost-efficiency:

- The en route 2022 actual unit cost of Sweden was 89.61€₂₀₁₇, 11% higher than the determined unit cost (80.42€₂₀₁₇). The terminal 2022 actual unit cost was 166.24€₂₀₁₇, 7.0% lower than the determined unit cost (178.80€₂₀₁₇).
- The en route 2022 actual service units (2,472K) were 9.3% lower than the determined service units (2,724K).
- The en route 2022 actual total costs were slightly higher than determined (+2.5M€₂₀₁₇, or +1.1%). The decrease in staff cost due to lower pension costs (-8.9M€₂₀₁₇, or -6.6%) was partly offset by increases in all of the other cost categories.
- The NSA explained that the significant increase in cost of capital (+5.0M€₂₀₁₇, or +59%) was due to higher inflation rates than planned increasing the valuation of the pension debt.
- LFV spent 27M€₂₀₁₇ in 2022 related to costs of investments, 30% higher than determined (21M€₂₀₁₇). The NSA explains that it was mainly due to a write-down of the investment project TopSky and a higher than planned value of pension debts that was used to finance investments.
- These significant differences in investment costs amount to 5.5M€ in nominal terms, which Sweden intends to charge to airspace users through the cost sharing mechanism. The PRB invites the NSA to investigate the eligibility of such costs and to ensure proper consultation with airspace users on this topic.
- The en route actual unit cost incurred by users in 2022 was 84.22€, while the terminal actual unit cost incurred by users was 180.34€.

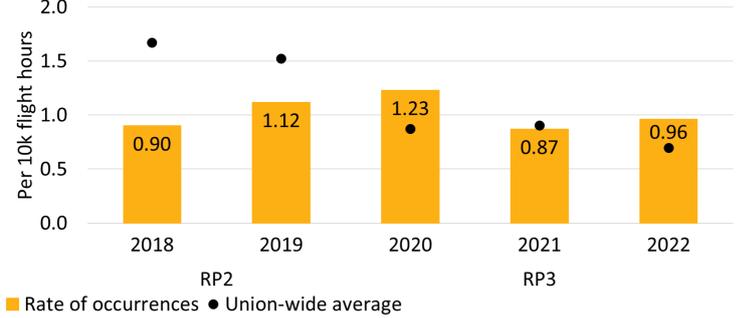
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



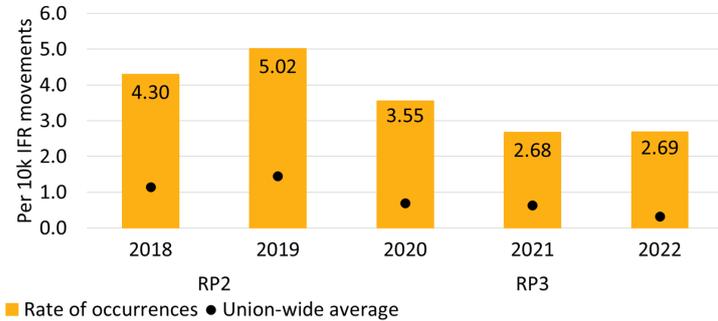
LFV has already achieved the RP3 EoS_M targets in 2021.

Rate of separation minima infringement (SMI) by year



The rate of SMIs increased in 2022 relative to 2021. The rate is marginally above the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement is at compatible level to 2021. The rate is above the Union-wide average.

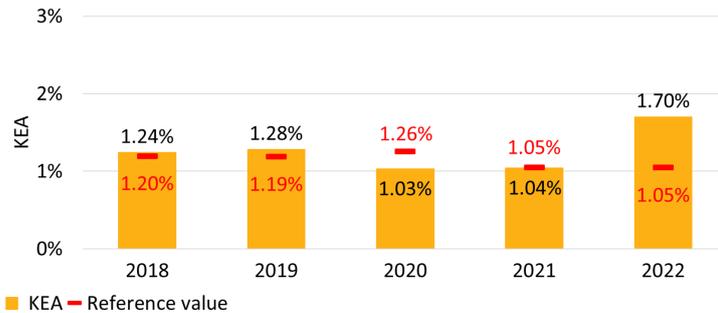
Use of automated safety data recording systems



Sweden does not use automated safety data recording systems for RIs or for SMIs.

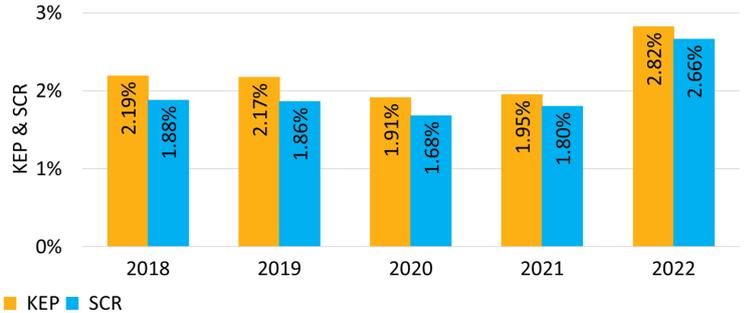
Environment

KEA performance



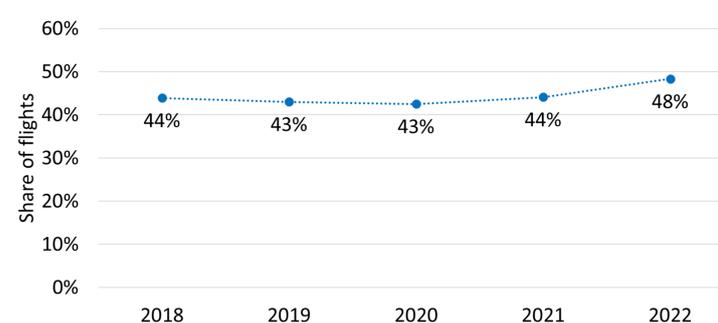
Sweden did not achieve its 2022 KEA target by 0.65 percentage points and performance worsened relative to 2021.

KEP and SCR performance



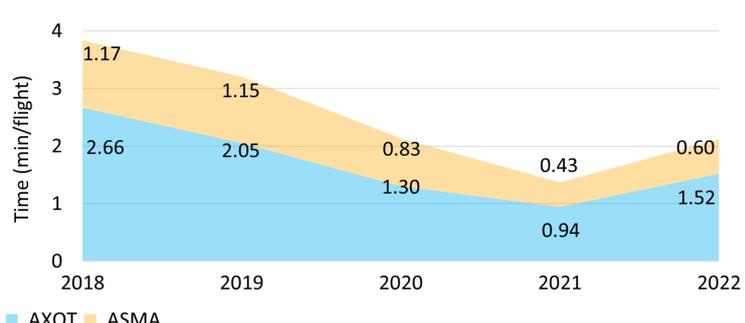
Sweden did not make shorter routes (SCR) available in 2022, leading to airspace users planning longer routes.

Share of CDO per year



Sweden's CDO performance increased in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 2.12 minutes per flight either taxiing or holding at Stockholm Arlanda airport.

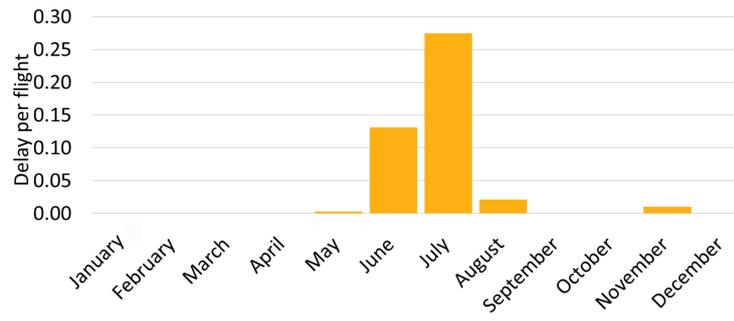
Capacity

ATFM delay per flight (min/flight)



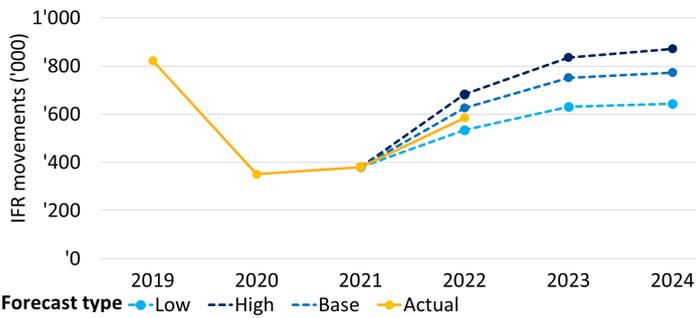
Delays in Sweden increased by 0.04 minutes per flight year-on-year. Performance in Sweden exceeded the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



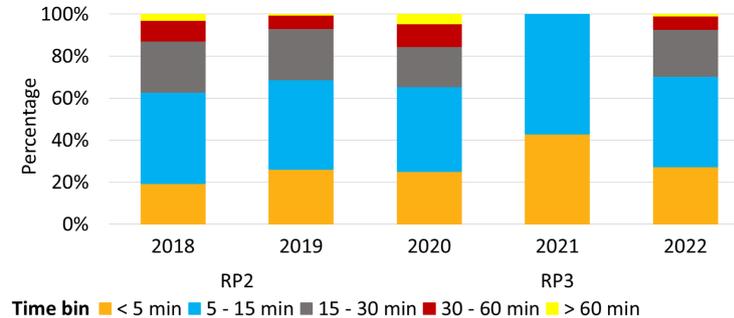
Most of the delays were accumulated during June and July due to minor ATC capacity issues.

IFR movements and forecasts by year



IFR movements in Sweden were 7% below the base scenario of the 2022 June forecast in 2022.

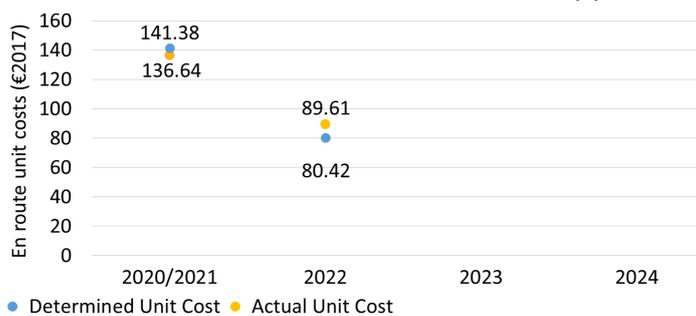
Percentage of en route delays per flight by year and time bin



The share of flights with delays longer than 15 minutes increased by 30 percentage points but remained below pre-COVID values.

Cost-efficiency

En route actual unit cost and determined unit cost by year



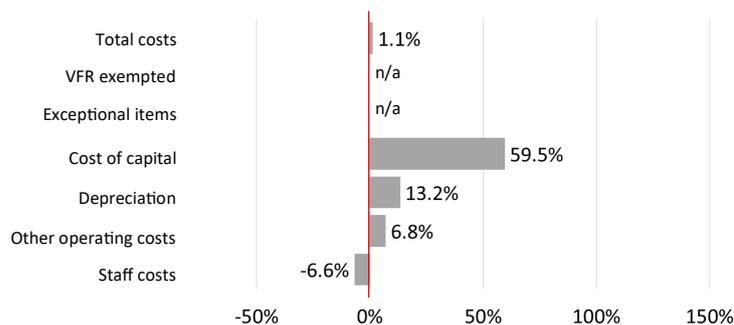
The 2022 en route actual unit cost was higher than the determined unit cost.

Terminal actual unit cost and determined unit cost by year



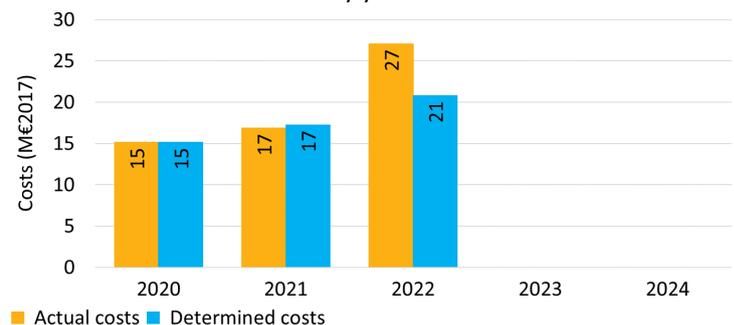
The 2022 terminal actual unit cost was lower than the determined unit cost.

% difference between 2022 actual costs and determined



Despite significant variations across cost categories, actual total costs were slightly higher than determined.

Costs related to investments by year



LFV 2022 costs related to investments were 30% higher than determined.

Comments from the Performance Review Body:

Safety:

- Skyguide achieved the RP3 EoSM targets for all management objectives, except for safety risk management, which is in line with its planned maturity level. In 2022, the NSA reviewed Skyguide's safety management function and concluded that the ANSP should achieve all the EoSM targets before the end of RP3. Skyguide implemented specific measures in all safety management areas to maintain safety performance.
- In 2022, Switzerland recorded a lower rate of runway incursions, and marginally higher rate of separation minima infringements despite significant traffic increase.
- Skyguide could improve its safety management by implementing automated safety data recording systems for runway incursions.

Environment:

- Switzerland achieved a KEA performance of 4.51% compared to its target of 3.95% and did not contribute positively towards achieving the Union-wide target. KEA increased by 0.64 percentage points compared to 2021.
- The NSA states that most inefficiencies are due to the network impacted by ATC strikes or flight planning.
- Both SCR and KEP worsened in 2022.
- The share of CDO flights decreased by 9.84% compared to 2021.
- During 2022, additional time in terminal airspace increased from 1.14 to 1.64 min/flight, while additional taxi out time increased from 1.84 to 2.22 min/flight.

Capacity:

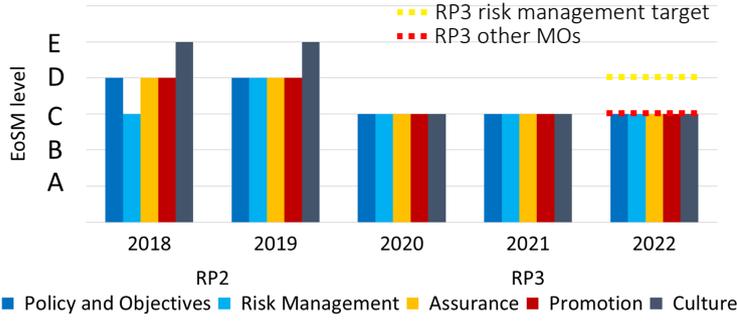
- Switzerland registered 0.34 minutes of average en route ATFM delay per flight during 2022, which has been adjusted to 0.21 during the post-ops adjustment process, thus not achieving the local target value of 0.19.
- The average number of IFR movements was still 11% below 2019 levels in Switzerland in 2022.
- A decrease in the number of ATCOs in OPS is planned in both ACCs by the end of RP3. The actual value remained lower than the 2022 plan in Geneva ACC, while in Zurich ACC the actual value was above the 2022 plan.
- Given that ATC capacity appears to be a continuing issue in Switzerland, the planned number of ATCOs in OPS may need to be revised upwards.

Cost-efficiency:

- The en route 2022 actual unit cost of Switzerland was 105.23€₂₀₁₇, 2.1% higher than the determined unit cost (103.11€₂₀₁₇). The terminal 2022 actual unit cost was 372.26€₂₀₁₇, 2.1% lower than the determined unit cost (380.28€₂₀₁₇).
- The en route 2022 actual service units (1,545K) were 3.1% lower than the determined service units (1,594K).
- In 2022, the en route actual total costs were slightly lower (-1.8M€₂₀₁₇, or -1.1%) than determined. The decrease is driven by reduced staff cost (-17M€₂₀₁₇, or -14%), the NSA explained that it is due to the reimbursement by pension fund, although partially offset by the provision for ATCO retirement age transition costs.
- However, the variations within cost categories were not transparent as it includes the non-invoicing of the financing of the delegated airspace, that was initially determined as negative exceptional items. As already mentioned last year, Switzerland should improve clarity in the reporting.
- Skyguide spent 41M€₂₀₁₇ in 2022 related to costs of investments, 8.7% less than determined (45M€₂₀₁₇), mainly due to lower net book value of fixed assets than planned.
- The en route actual unit cost incurred by users in 2022 was 107.89€, while the terminal actual unit cost incurred by users was 430.65€.

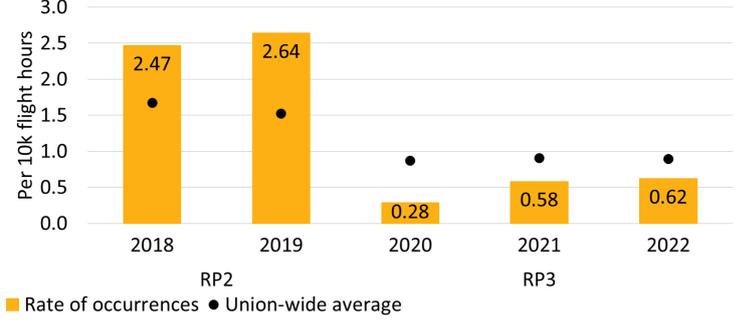
Safety

Main ANSP's effectiveness of safety management (EoS_M) by year



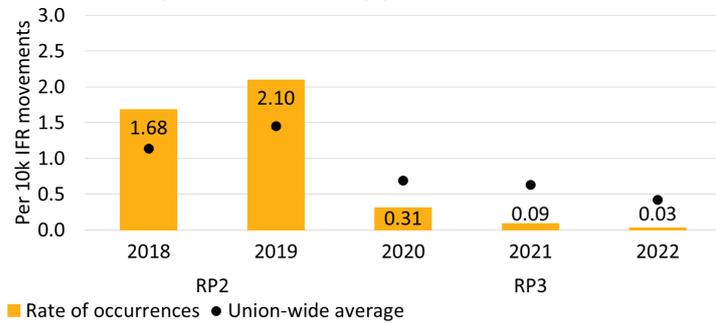
Skyguide did not achieve the RP3 target for safety risk management but has already achieved the RP3 targets for all other MOs.

Rate of separation minima infringement (SMI) by year



The rate of SMIs marginally increased in 2022 relative to 2021. The rate was below the Union-wide average.

Rate of runway incursions (RIs) by year



The rate of RIs per movement decreased in 2022 relative to 2021. The rate was below the Union-wide average.

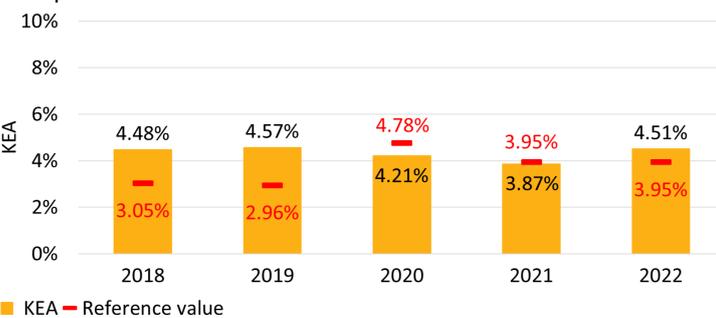
Use of automated safety data recording systems



Switzerland uses the automated safety data recording systems for SMIs.

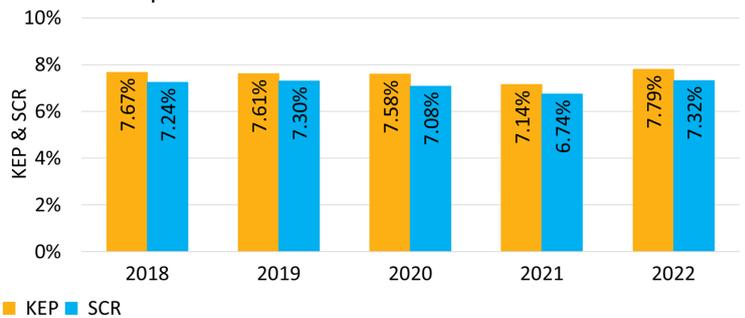
Environment

KEA performance



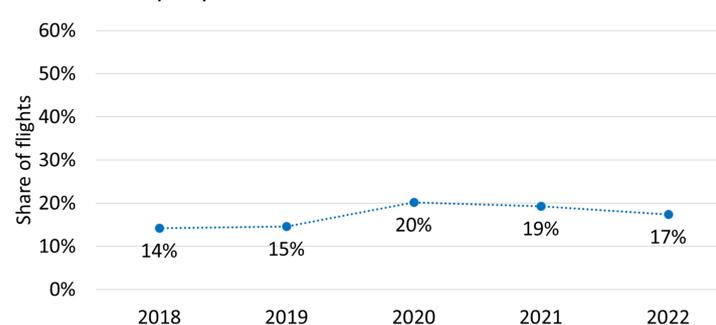
Switzerland did not achieve its 2022 KEA target by 0.56 percentage points, and performance worsened relative to 2021.

KEP and SCR performance



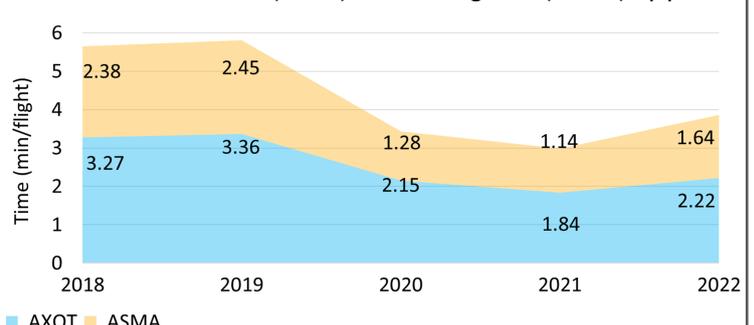
Switzerland did not make SCR available to airspace users in 2022, leading to airspace users planning longer routes.

Share of CDO per year



Switzerland's CDO performance worsened in 2022 compared to 2021.

Additional taxi out time (AXOT) and holding time (ASMA) by year



Terminal airspace users spent an additional 3.86 minutes per flight either taxiing or holding at Swiss airports.

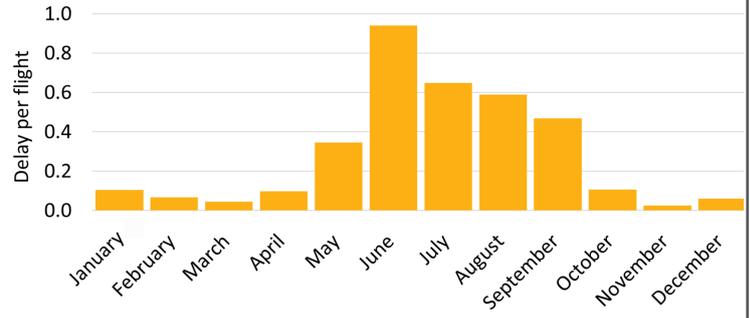
Capacity

ATFM delay per flight (min/flight)



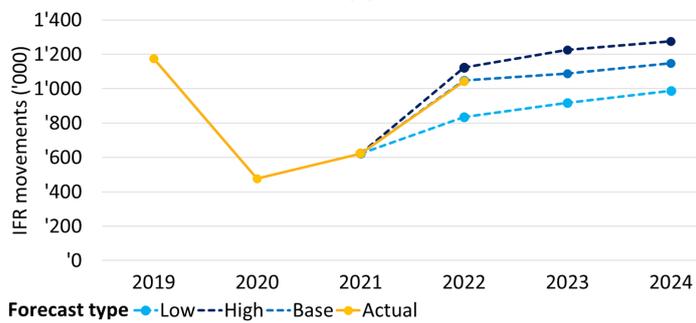
Delays in Switzerland increased by 0.16 minutes per flight year-on-year. Performance was worse than the local target in 2022.

Monthly ATFM delay per flight (min/flight) in 2022



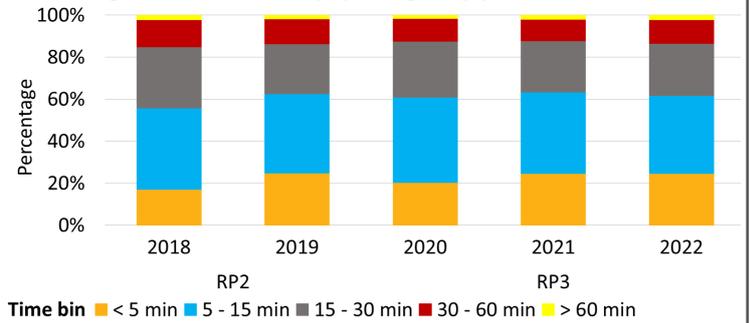
Delays were highest between June and September due to ATC capacity issues, adverse weather, and ATC-related disruptions.

IFR movements and forecasts by year



IFR movements in Switzerland were 1% below the base scenario of the 2021 October forecast in 2022.

Percentage of en route delays per flight by year and time bin



The share of delayed flights with delays longer than 15 minutes increased by 2 percentage points compared to 2021.

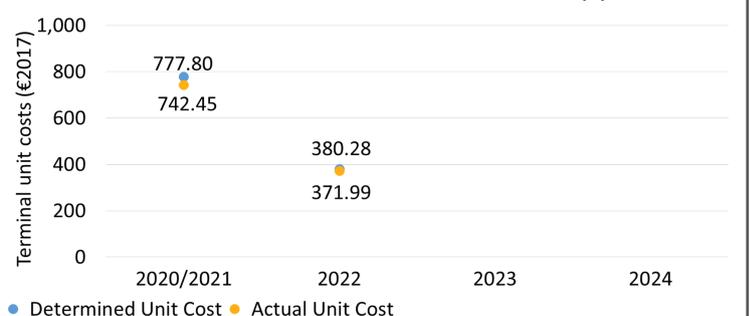
Cost-efficiency

En route actual unit cost and determined unit cost by year



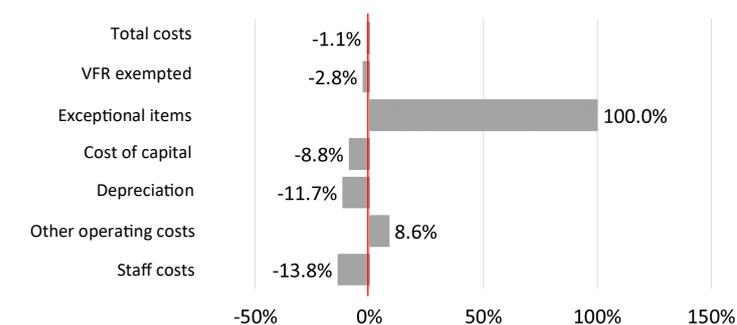
The 2022 en route determined unit cost was higher than the actual unit cost.

Terminal actual unit cost and determined unit cost by year



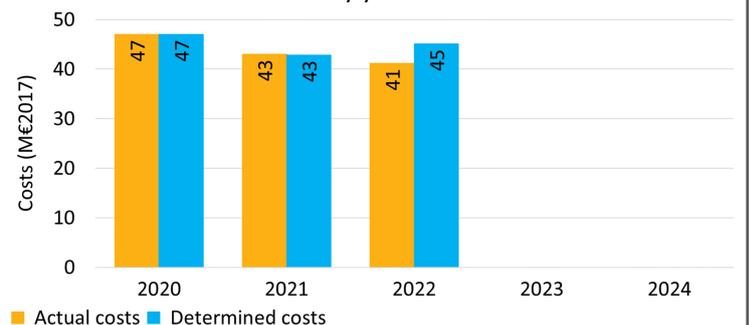
The 2022 terminal actual unit cost was lower than the determined unit cost.

% difference between 2022 actual costs and determined



Despite significant variations across cost categories, actual total costs were slightly lower than determined.

Costs related to investments by year



Skyguide 2022 costs related to investments were 8.7% lower than determined.